

Appendix. Mean daily locations of 27 individual harbor seal pups captured in June 1997-1999, on Tugidak Island, Alaska (Figures 1 – 27). Locations were visually grouped by region to identify general movement patterns (Tables 1-27).

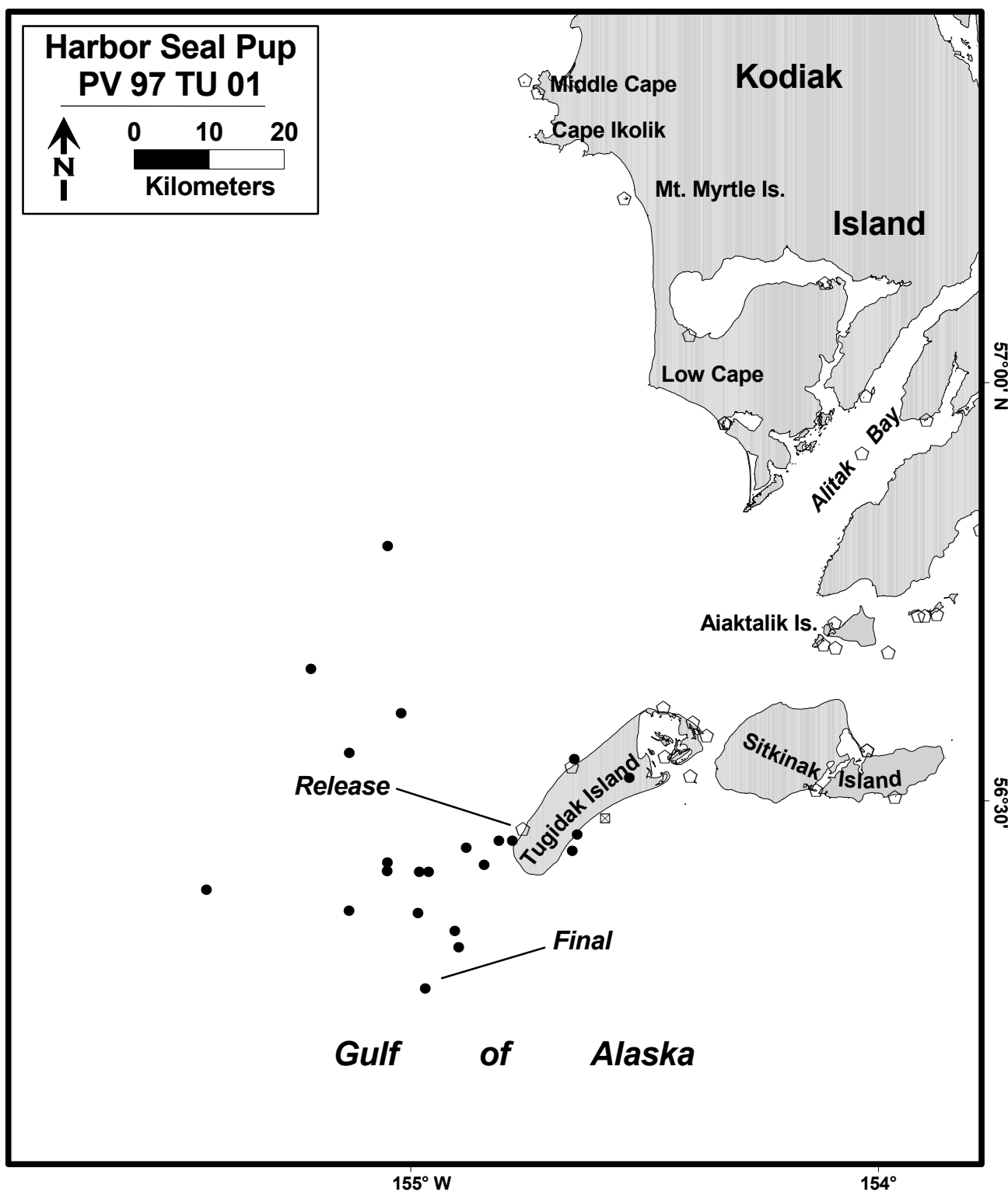


Figure 1. Mean daily at-sea (●) and on-land (⊠) locations of harbor seal # PV 97 TU 01, a male pup captured at Tugidak Island Southwest Beach on 25 June 1997. Data were received from this seal for 135 days, with the final location recorded on 11 August 1997, south-southwest of Tugidak Island. Release location, final Argos mean daily location, and known harbor seal haulouts (◇) are indicated.

Table 1. Movements of harbor seal # PV 97 TU 01 among geographic regions in the study area.

Tugidak / Sitkinak Islands
6/25/1997 - 8/11

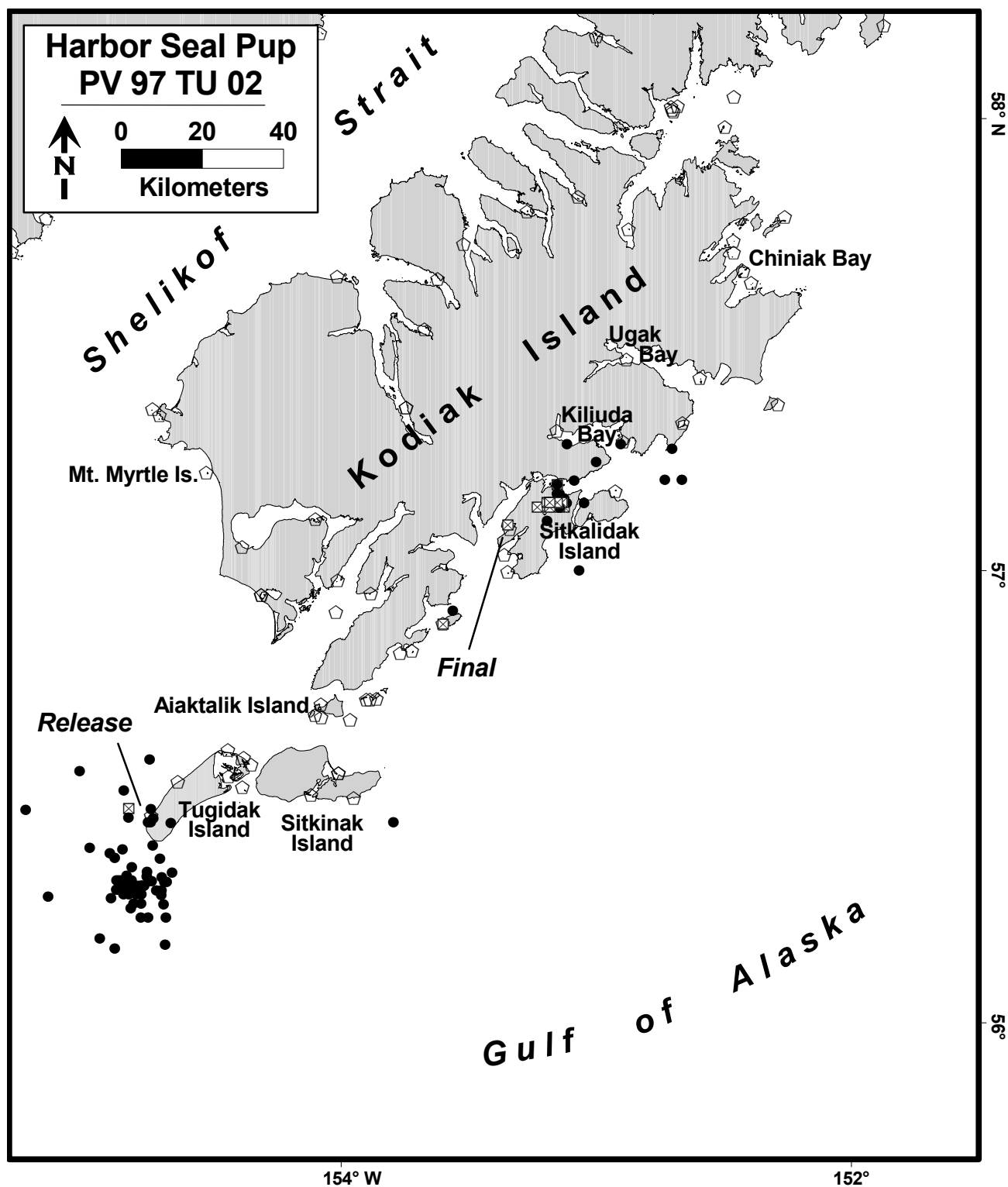


Figure 2. Mean daily at-sea (●) and on-land (⊠) locations of harbor seal # PV 97 TU 02, a male pup captured at Southwest Tugidak Island beach on 25 June 1997. Data were received from this seal for 349 days, with the final location recorded on 9 June 1998 in Sitkalidak Strait. Release location, final Argos mean daily location, and known harbor seal haulouts (◊) are indicated.

Table 2. Movements of harbor seal # PV 97 TU 02 among geographic regions in the study area.

Tugidak / Sitkinak Islands	Kiliuda Bay	Sitkalidak Island
6/25/1997 - 11/7		
		11/9 - 11/11
	11/13 - 11/16	
		11/17 - 6/9/1998

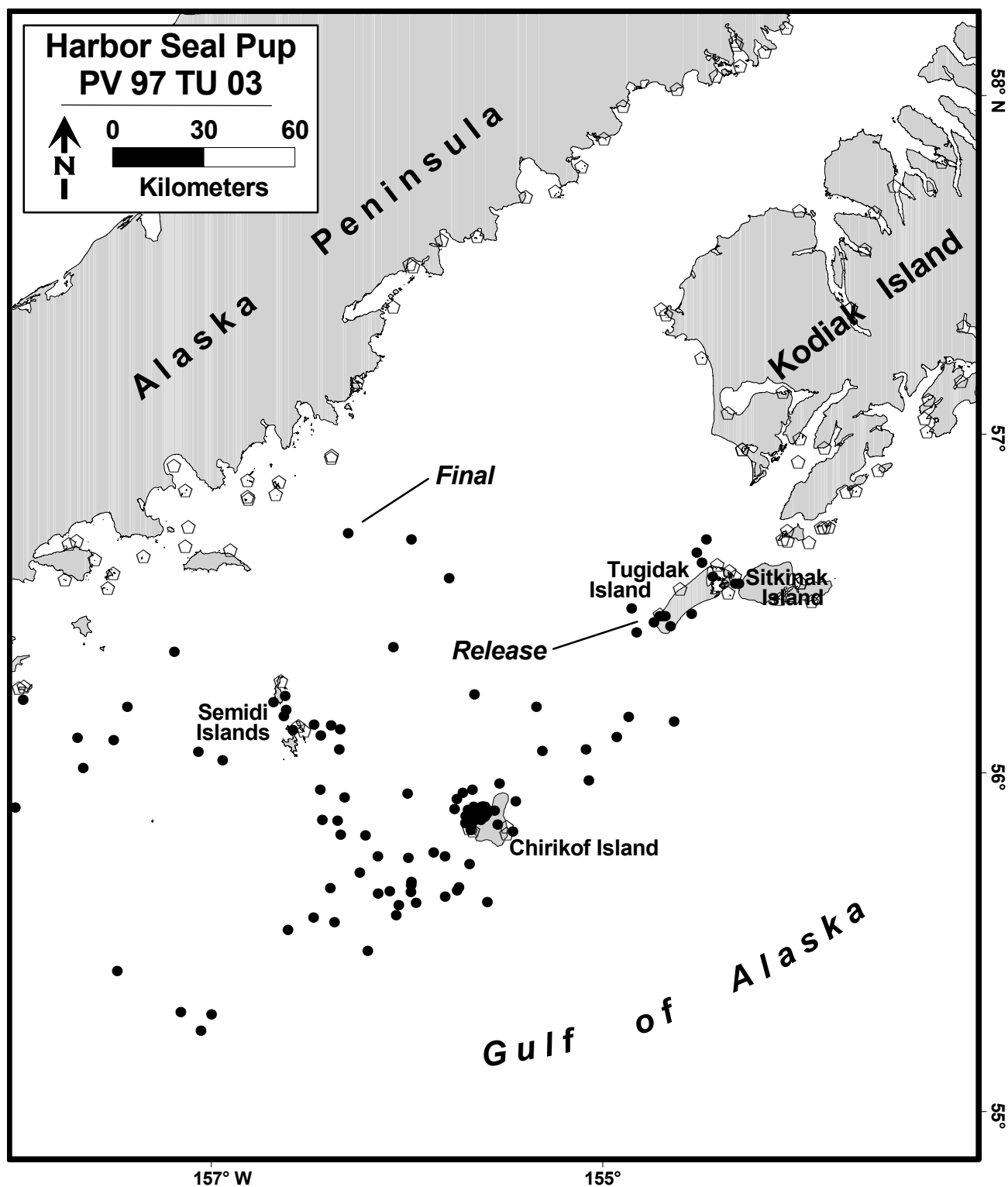


Figure 3. Mean daily at-sea (●) and on-land (☒) locations of harbor seal # PV 97 TU 03, a male pup captured at Southwest Tugidak Island Beach on 25 June 1997. Data were received from this seal for 269 days, with the final location recorded on 21 March 1998, east of Sutwik Island. Release location, final Argos mean daily location, and known harbor seal haulouts (◊) are indicated.

Table 3. Movements of harbor seal # PV 97 TU 03 among geographic regions in the study area.

Tugidak / Sitkinak Islands	Chirikof / Semidi Islands
6/25/1997 - 7/18	
	7/22 - 10/14
10/17 - 10/18	
	10/21 - 11/27
11/29 - 11/30	
	12/2 - 3/21/1998

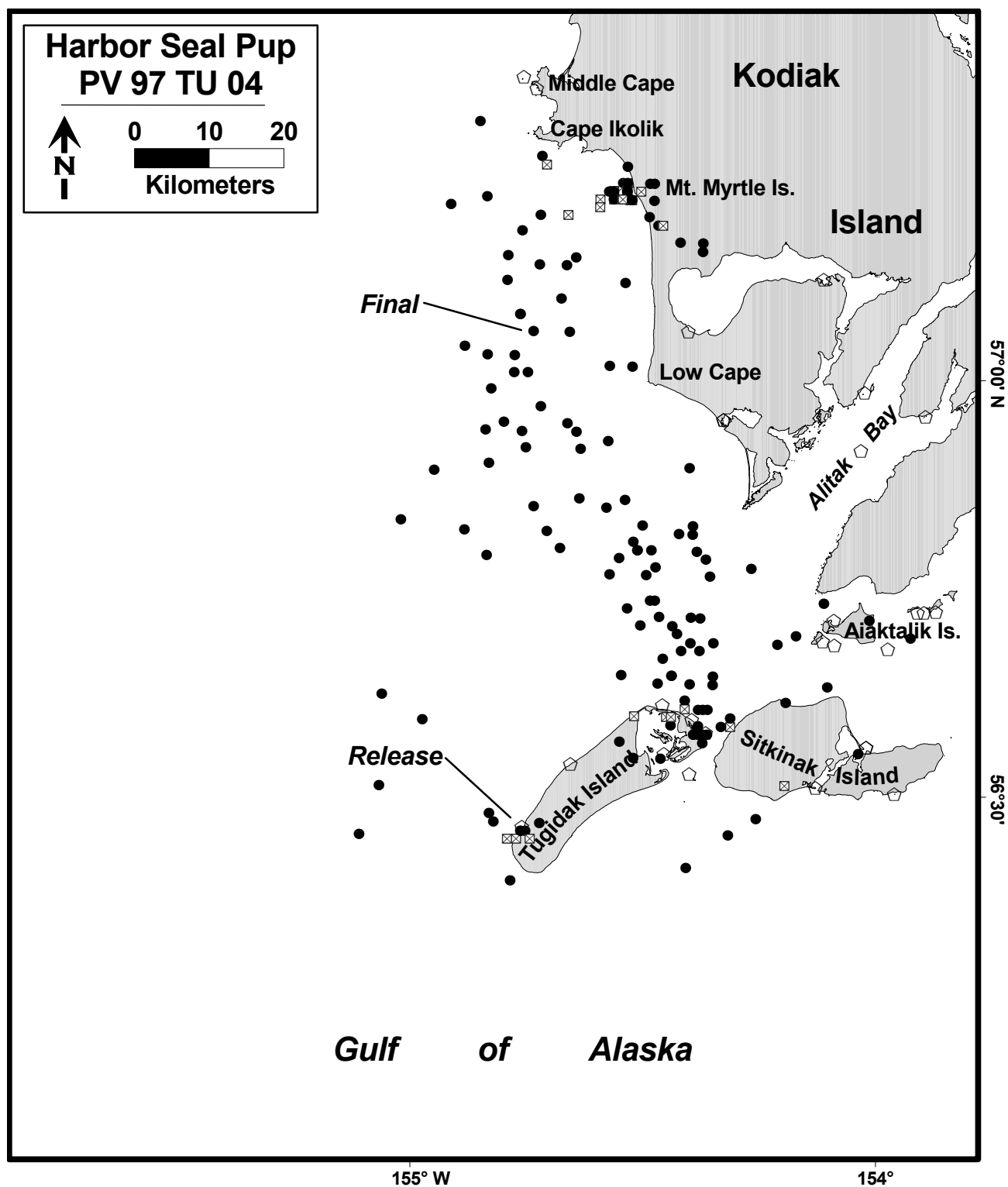


Figure 4. Mean daily at-sea (●) and on-land (⊠) locations of harbor seal # PV 97 TU 04, a female pup captured at Southwest Tugidak Island Beach on 25 June 1997. Data were received from this seal for 335 days, with the final location recorded on 26 May 1998, west-northwest of Low Cape. Release location, final Argos mean daily location, and known harbor seal haulouts (◇) are indicated.

Table 4. Movements of harbor seal # PV 97 TU 04 among geographic regions in the study area.

Tugidak / Sitkinak Islands	Southwest Kodiak Island
6/25/1997 - 11/7	
	11/9 - 11/15
11/18 - 12/5	
	12/9 - 12/24
12/26	
	12/28 - 1/12/1998
1/12 - 1/15	
	1/25 - 5/26

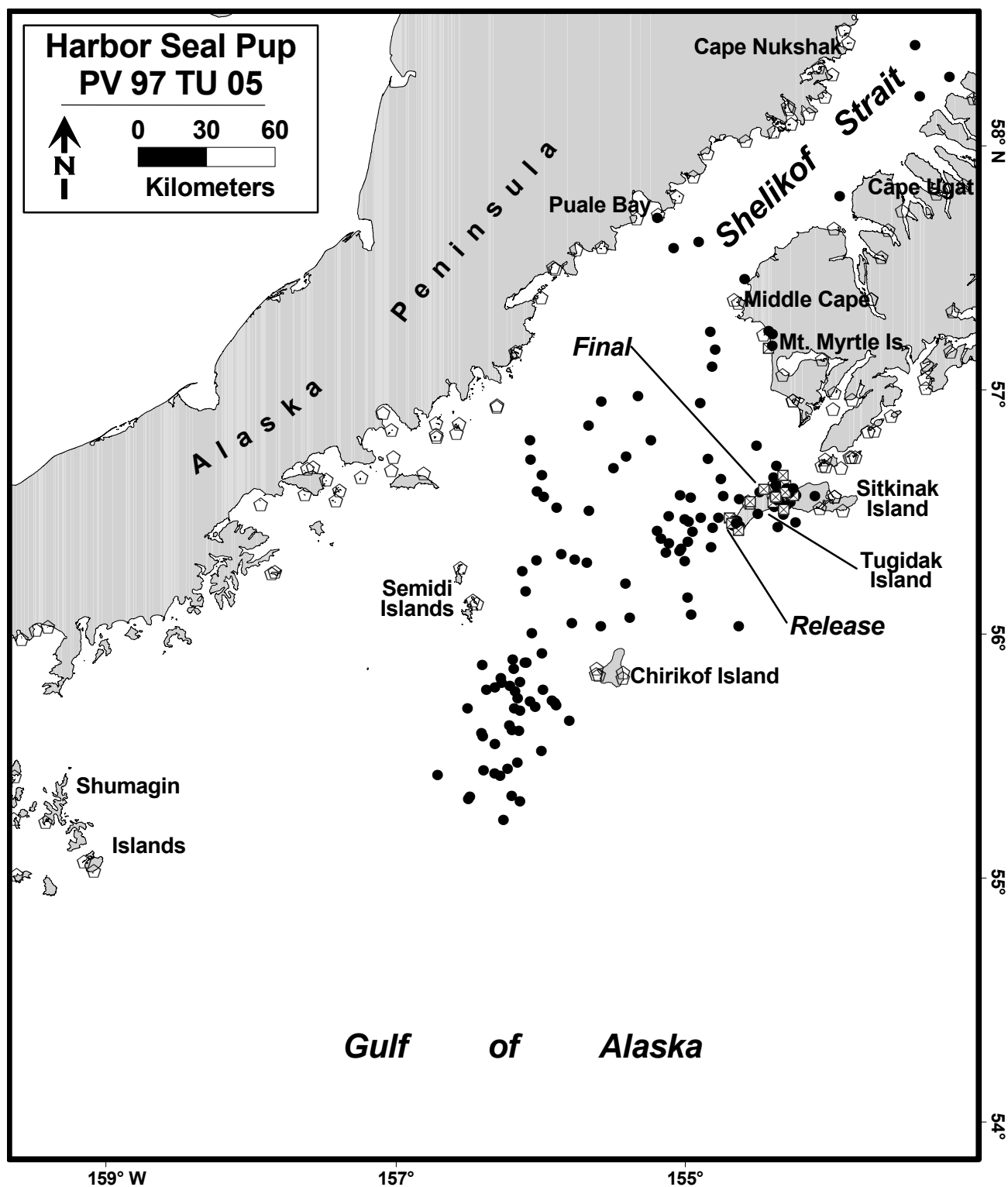


Figure 5. Mean daily at-sea (●) and on-land (⊠) locations of harbor seal # PV 97 TU 05, a female pup captured at Southwest Tugidak Island Beach on 25 June 1997. Data were received from this seal for 330 days, with the final location recorded on 21 May 1998, near Middle Tugidak Island Beach. Release location, final Argos mean daily location, and known harbor seal haulouts (◇) are indicated.

Table 5. Movements of harbor seal # PV 97 TU 05 among geographic regions in the study area.

Tugidak / Sitkinak Islands	Chirikof / Semidi Islands	Southwest Kodiak Island	Shelikof Strait
6/26/1997 - 8/4			
		8/5 - 8/8	
			8/12 - 8/18
		8/19 - 8/21	
	8/23 - 9/8		
9/10 - 9/14			
	9/15 - 9/26		
9/28 - 10/2			
	10/4 - 10/16		
10/17 - 10/20			
	10/23 - 10/27		
		10/28 - 10/29	
10/30 - 11/2			
	11/4 - 11/13		
11/17 - 12/5			
			12/10 - 12/15
12/17 - 1/16/1998			
	1/21 - 2/3		
2/7 - 3/3			
	3/12 - 3/17		
3/18 - 3/19			
	3/24 - 4/5		
4/6 - 5/21			

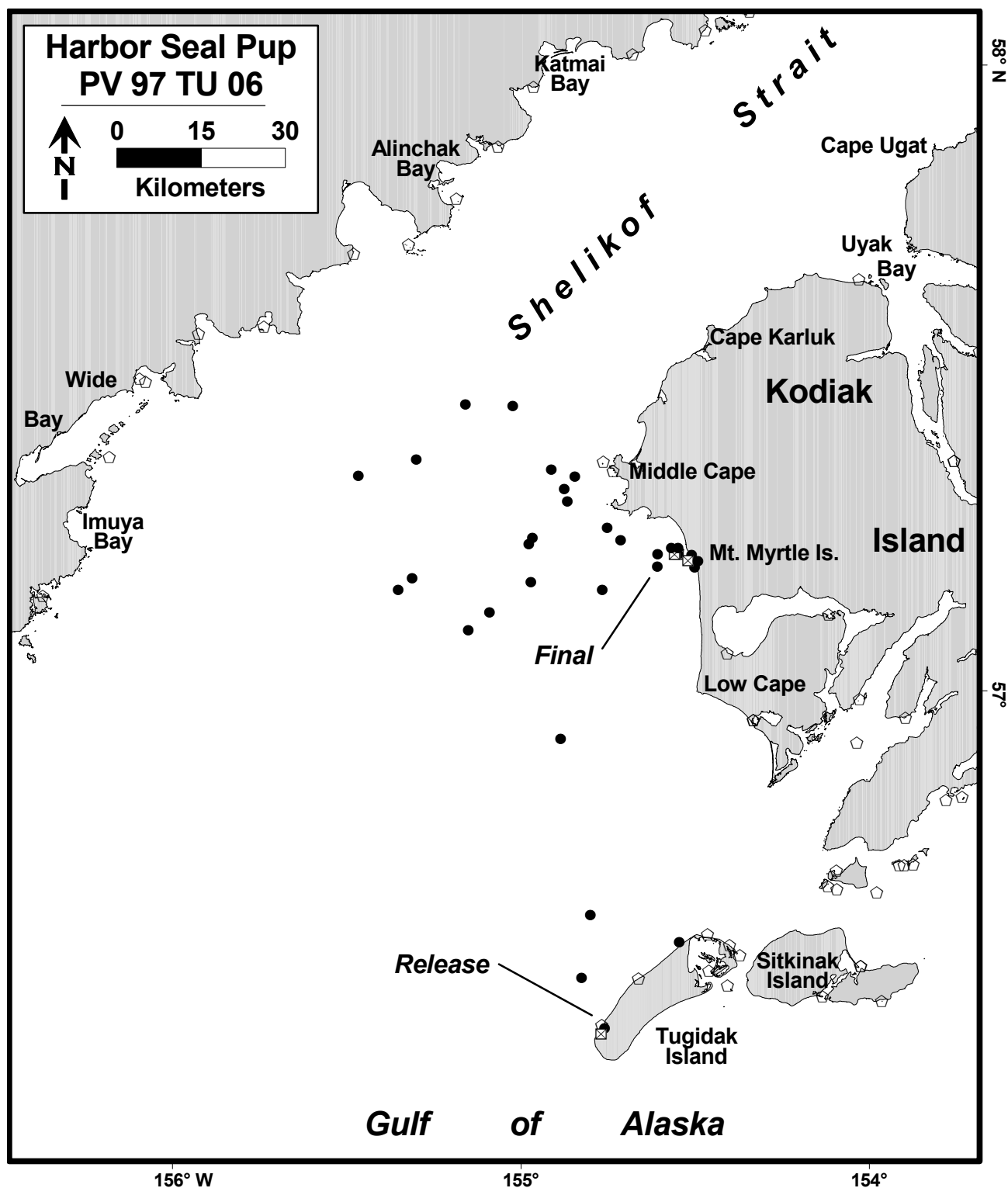


Figure 6. Mean daily at-sea (●) and on-land (⊠) locations of harbor seal # PV 97 TU 06, a male pup captured at Southwest Tugidak Island Beach on 26 June 1997. Data were received from this seal for 245 days, with the final location recorded on 26 February 1998, at Mount Myrtle Island. Release location, final Argos mean daily location, and known harbor seal haulouts (◇) are indicated.

Table 6. Movements of harbor seal # PV 97 TU 06 among geographic regions in the study area.

Tugidak / Sitkinak Islands	Southwest Kodiak Island
6/26/1997 - 7/18	
	7/22 - 2/26/1998

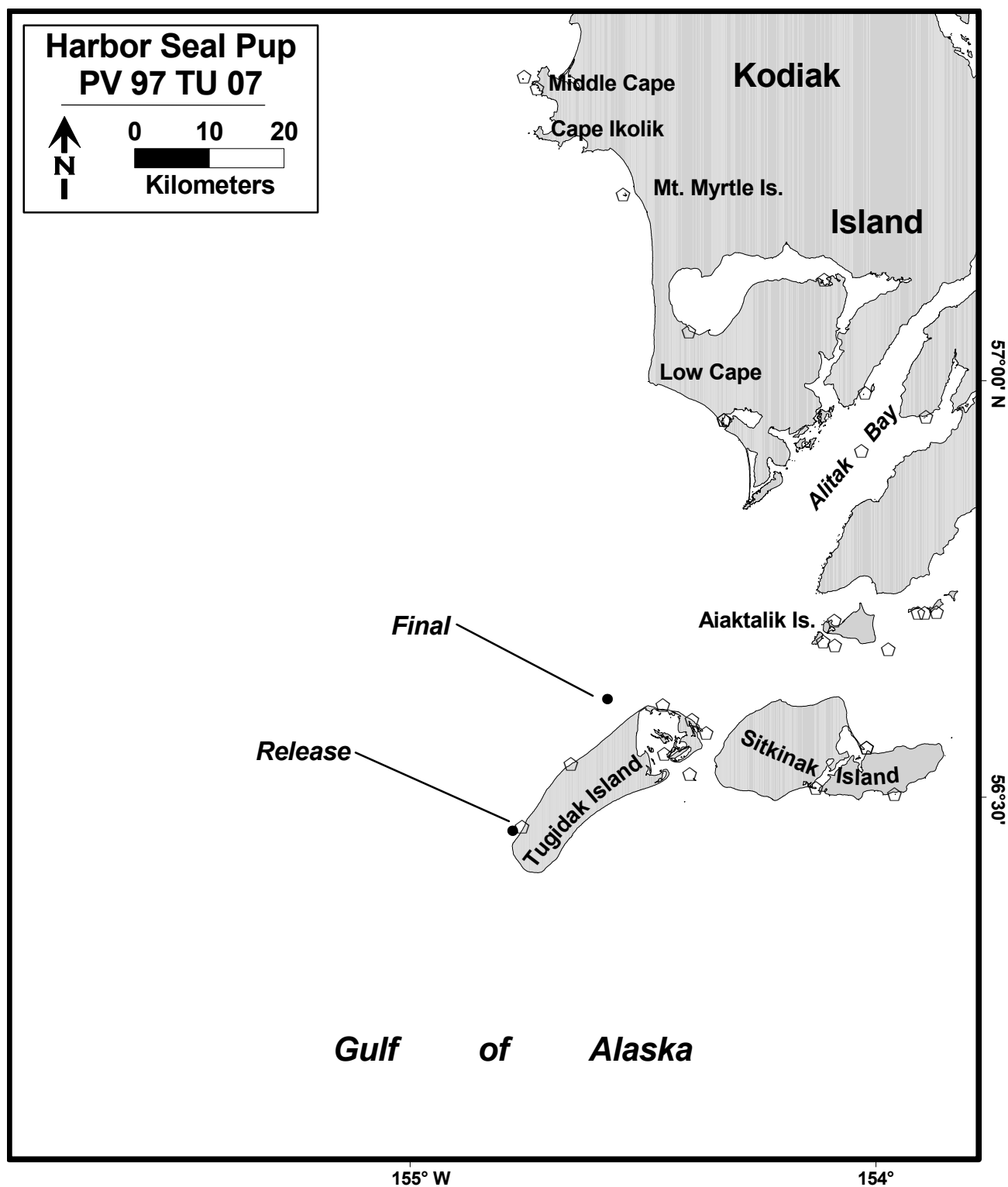


Figure 7. Mean daily at-sea (●) and on-land (☒) locations of harbor seal # PV 97 TU 07, a male pup captured at Southwest Tugidak Island Beach on 27 June 1997. Data were received from this seal for 3 days, with the final location recorded on 30 June 1997 near Tugidak Island. Release location, final Argos mean daily location, and known harbor seal haulouts (◻) are indicated.

Table 7. Movements of harbor seal # PV 97 TU 07 among geographic regions in the study area.

Tugidak / Sitkinak Islands
6/27- 6/30/1997

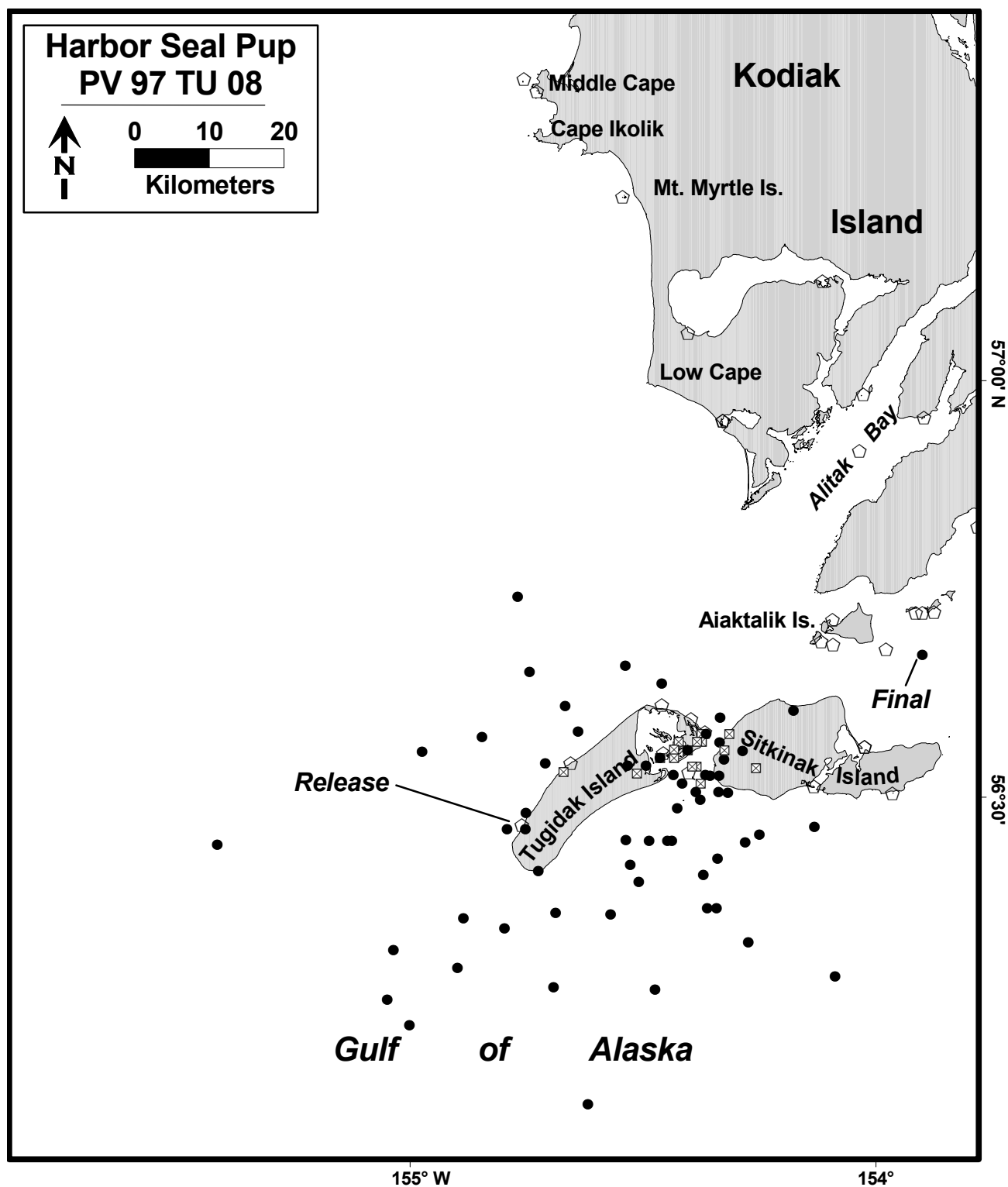


Figure 8. Mean daily at-sea (●) and on-land (⊠) locations of harbor seal # PV 97 TU 08, a male pup captured at Southwest Tugidak Island Beach on 26 June 1997. Data were received from this seal for 322 days, with the final location recorded on 14 May 1998, northeast of Sitkinak Island. Release location, final Argos mean daily location, and known harbor seal haulouts (◇) are indicated.

Table 8. Movements of harbor seal # PV 97 TU 08 among geographic regions in the study area.

Tugidak / Sitkinak Islands
6/26/1997 - 5/14/1998

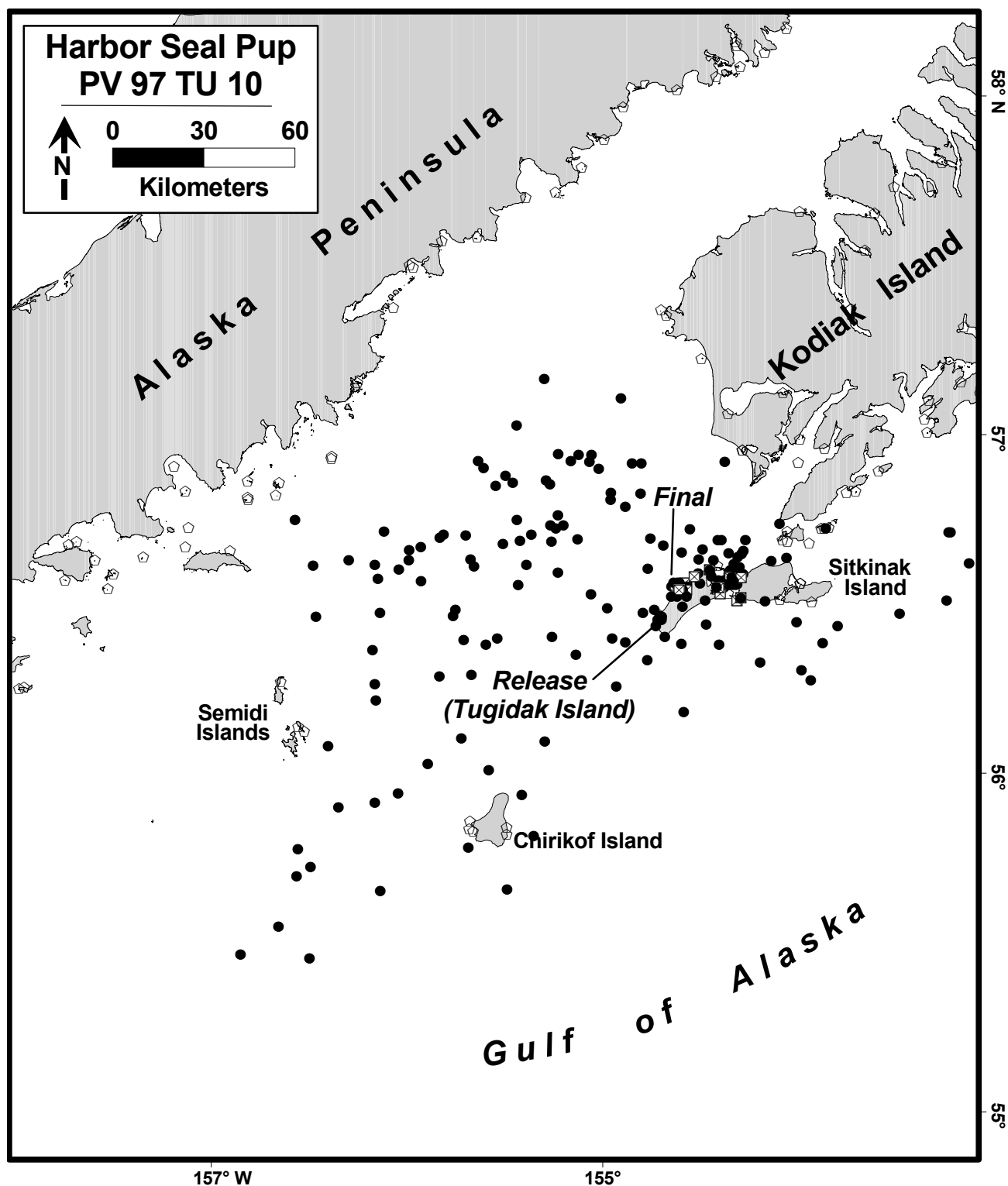


Figure 9. Mean daily at-sea (●) and on-land (⊠) locations of harbor seal # PV 97 TU 10, a female pup captured at Southwest Tugidak Island Beach on 26 June 1997. Data were received from this seal for 359 days, with the final location recorded on 20 June 1998, at Tugidak Island Middle Beach. Release location, final Argos mean daily location, and known harbor seal haulouts (◇) are indicated.

Table 9. Movements of harbor seal # PV 97 TU 10 among geographic regions in the study area.

Tugidak / Sitkinak Islands	Chirikof / Semidi Islands
6/26/1997 - 11/8	
	11/9 - 11/21
11/22 - 11/26	
	11/30 - 12/6
12/8 - 12/16	
	12/18 - 12/23
12/24 - 12/30	
	1/2/1998 - 1/8
1/9 - 1/18	
	1/27 - 2/3
2/4 - 3/25	
	3/26 - 4/10
4/11 - 6/20	

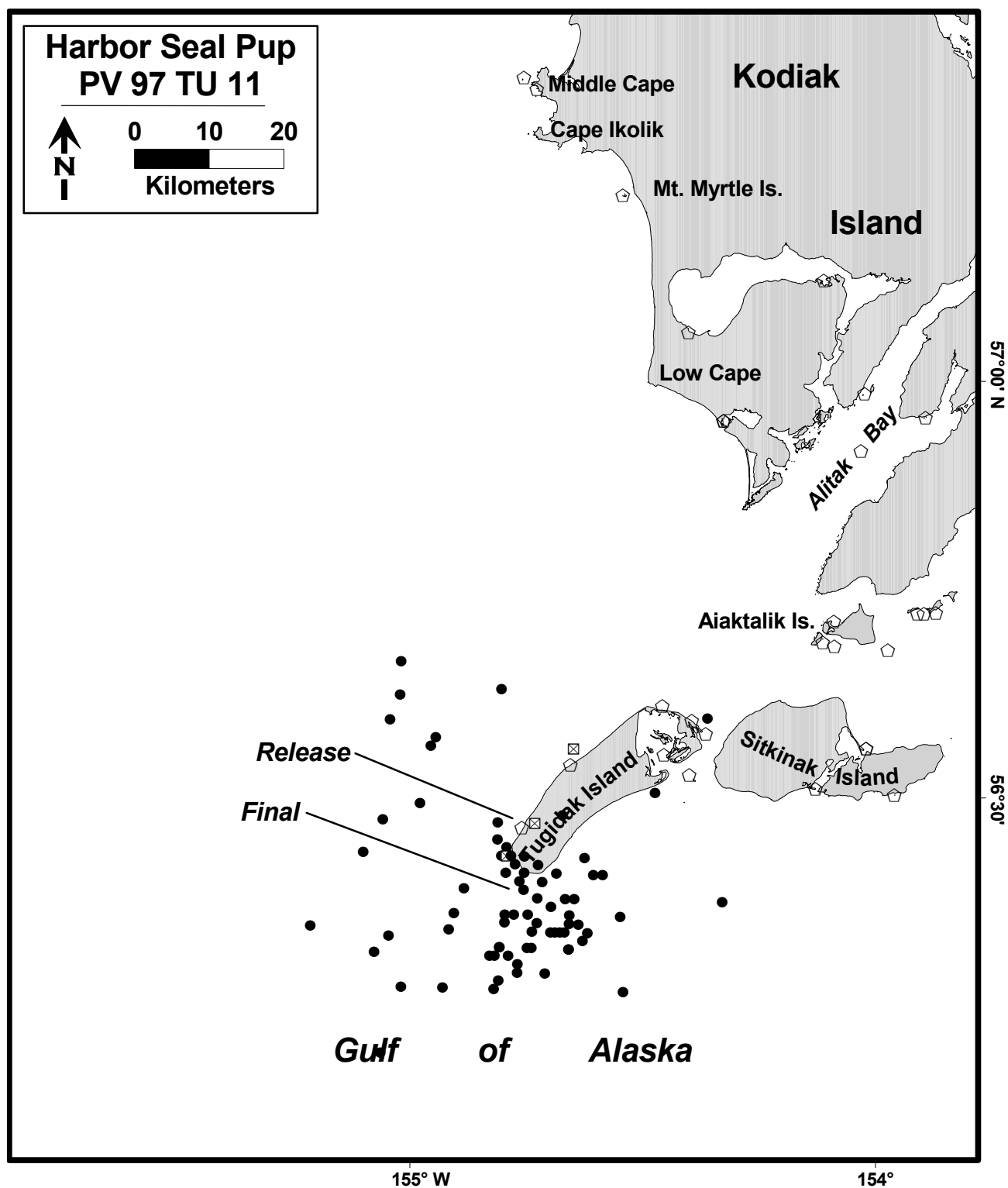


Figure 10. Mean daily at-sea (●) and on-land (⊠) locations of harbor seal # PV 97 TU 11, a male pup captured at Southwest Tugidak Island Beach on 27 June 1997. Data were received from this seal for 135 days, with the final location recorded on 9 November 1997, south of Tugidak Island. Release location, final Argos mean daily location, and known harbor seal haulouts (◇) are indicated.

Table 10. Movements of harbor seal # PV 97 TU 11 among geographic regions in the study area.

Tugidak / Sitkinak Islands
6/27/1997 - 11/9

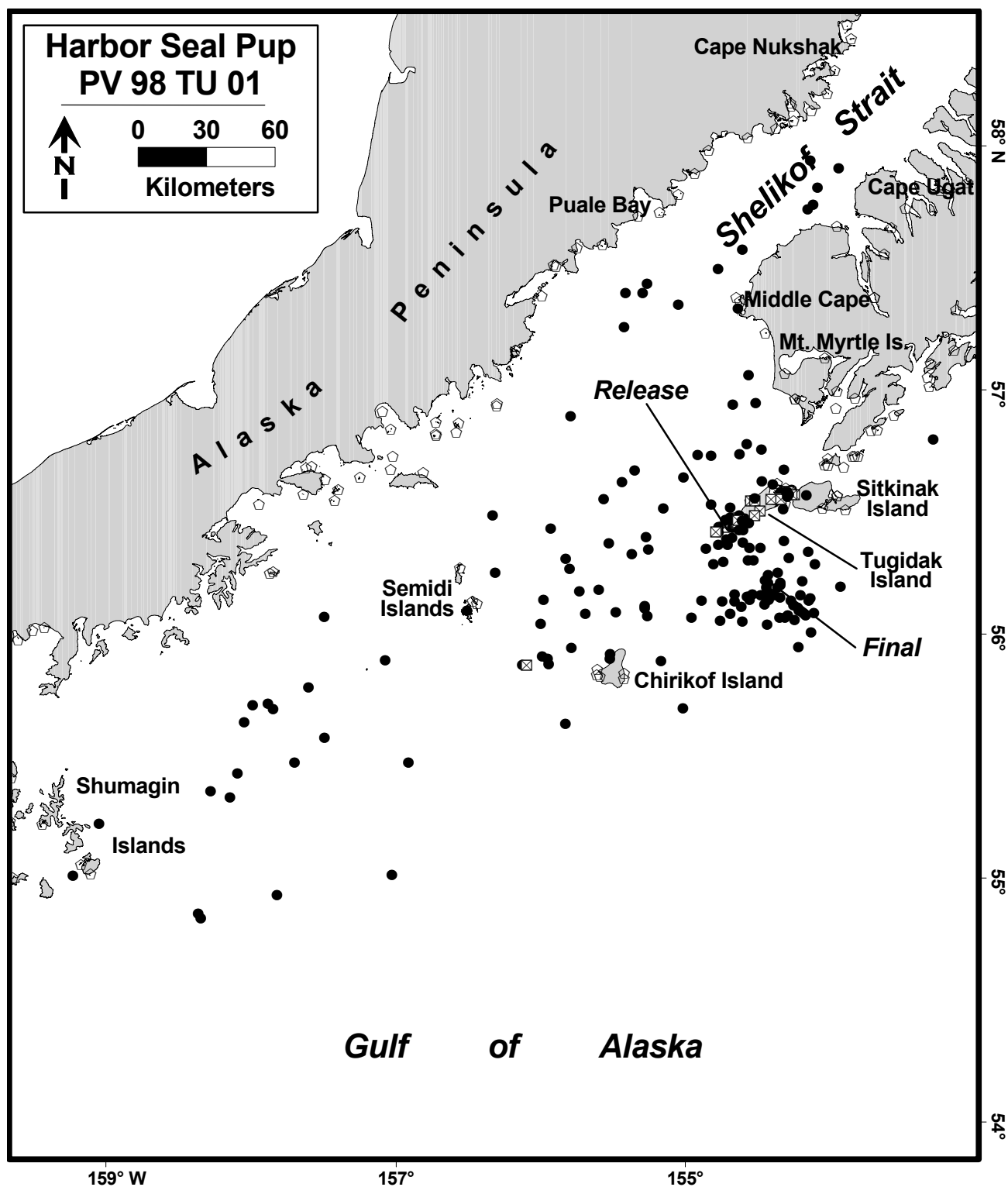


Figure 11. Mean daily at-sea (●) and on-land (⊠) locations of harbor seal # PV 98 TU 01, a male pup captured at Southwest Tugidak Island Beach on 24 June 1998. Data were received from this seal for 319 days, with the final location recorded on 9 May 1999, southeast of Tugidak Island. Release location, final Argos mean daily location, and known harbor seal haulouts (◻) are indicated.

Table 11. Movements of harbor seal # PV 98 TU 01 among geographic regions in the study area.

Tugidak / Sitkinak Islands	Chirikof / Semidi Islands	Shelikof Strait	Shumagin Islands
6/24/1998 - 7/21			
		7/22 - 8/7	
8/12 - 8/28			
	8/30 - 9/10		
9/13 - 9/19			
	9/20 - 10/10		
10/11 - 11/17			
	10/19		
			10/21 - 11/1
	11/2 - 11/9		
11/14			
	11/16 - 11/22		
11/24 - 5/9			

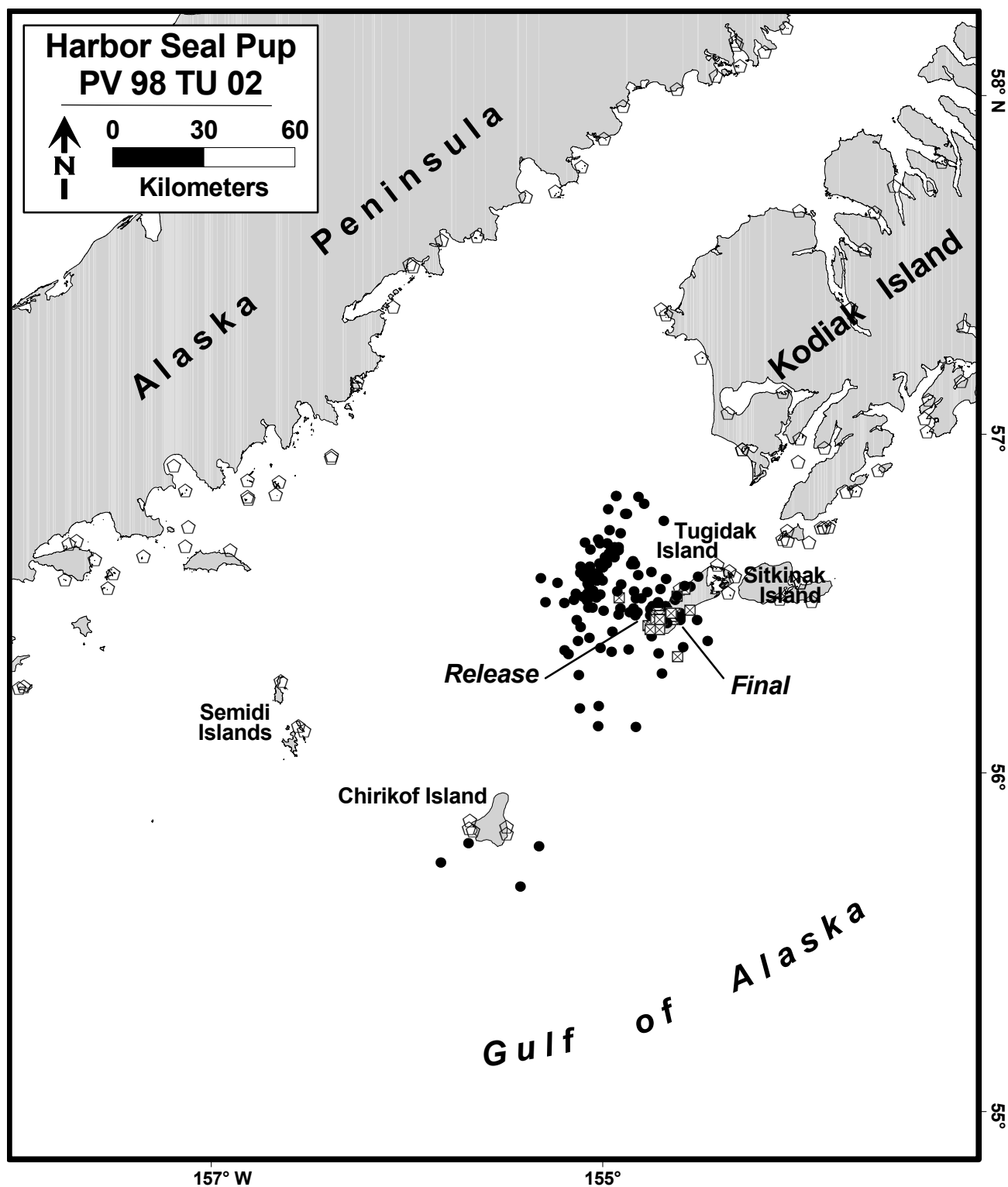


Figure 12. Mean daily at-sea (●) and on-land (⊠) locations of harbor seal # PV 98 TU 02, a male pup captured at Southwest Tugidak Island Beach on 24 June 1998. Data were received from this seal for 385 days, with the final location recorded on 14 July 1999, at Southwest Tugidak Island Beach. Release location, final Argos mean daily location, and known harbor seal haulouts (◊) are indicated.

Table 12. Movements of harbor seal # PV 98 TU 02 among geographic regions in the study area.

Tugidak / Sitkinak Islands	Chirikof Island
6/24/1998 - 8/5	
	8/6 - 8/9
8/12 - 7/14/1999	

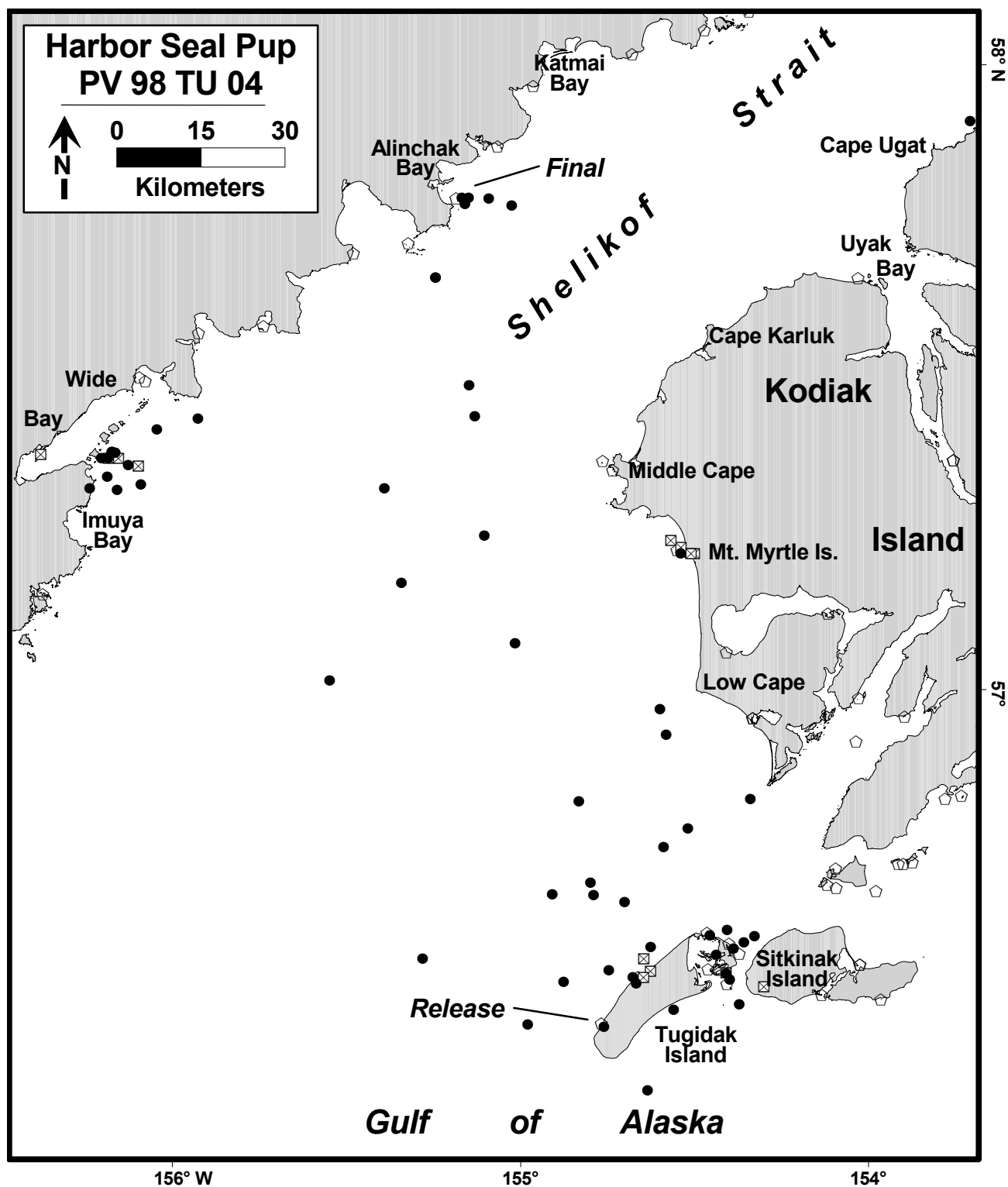


Figure 13. Mean daily at-sea (●) and on-land (☒) locations of harbor seal # PV 98 TU 04, a male pup captured at Southwest Tugidak Island Beach on 24 June 1998. Data were received from this seal for 187 days, with the final location recorded on 28 December 1998, at Alinchak Bay. Release location, final Argos mean daily location, and known harbor seal haulouts (◊) are indicated.

Table 13. Movements of harbor seal # PV 98 TU 04 among geographic regions in the study area.

Tugidak / Sitkinak Islands	Southwest Kodiak Island	Alinchak Bay	Wide Bay
6/24/1998 - 7/24			
		7/28 - 8/7	
			8/10 - 9/23
9/27 - 11/26			
	11/29		
		12/6 - 12/15	
12/20 - 12/27			
		12/28	

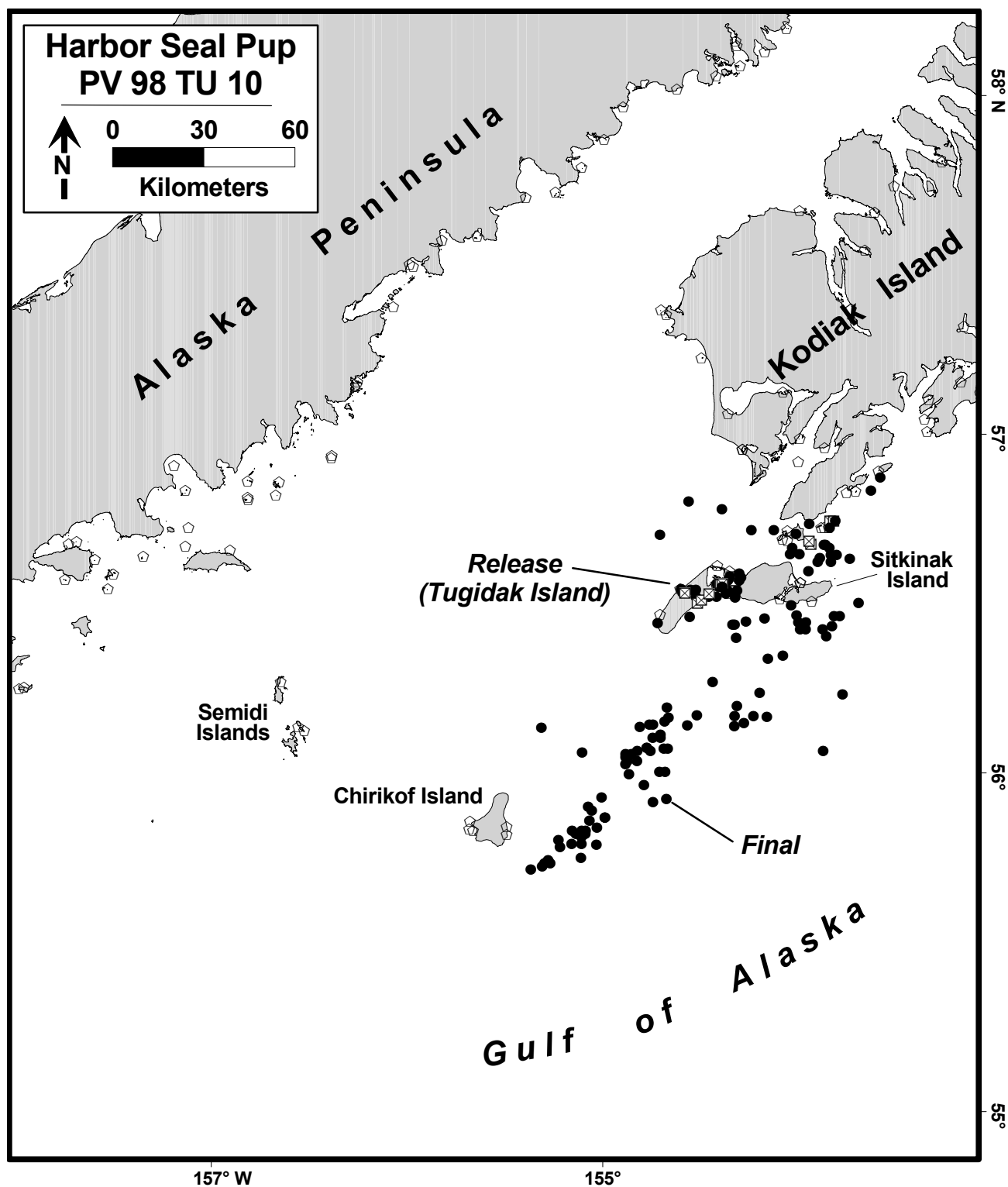


Figure 14. Mean daily at-sea (●) and on-land (⊠) locations of harbor seal # PV 98 TU 10, a male pup captured at South Middle Tugidak Island Beach on 25 June 1998. Data were received from this seal for 303 days, with the final location recorded on 24 April 1999, east-northeast of Chirikof Island. Release location, final Argos mean daily location, and known harbor seal haulouts (◇) are indicated.

Table 14. Movements of harbor seal # PV 98 TU 10 among geographic regions in the study area.

Tugidak / Sitkinak Islands	Chirikof Island	Aiaktalik / Geese Islands
6/25/1998 - 7/8		
		7/12 - 9/4
9/6 - 9/23		
		9/24 - 9/27
9/28		
	9/29 - 10/21	
10/21 - 10/24		
	10/25 - 11/2	
11/4 - 11/22		
	11/25 - 12/8	
12/11 - 12/24		
	12/17 - 12/18	
12/21 - 12/25		
	1/11/1999 - 1/12	
1/13 - 1/15		
	1/18 - 2/2	
2/4 - 2/23		
	2/26 - 3/11	
3/15 - 3/29		
	3/31 - 4/8	
4/9 - 4/23		
	4/24	

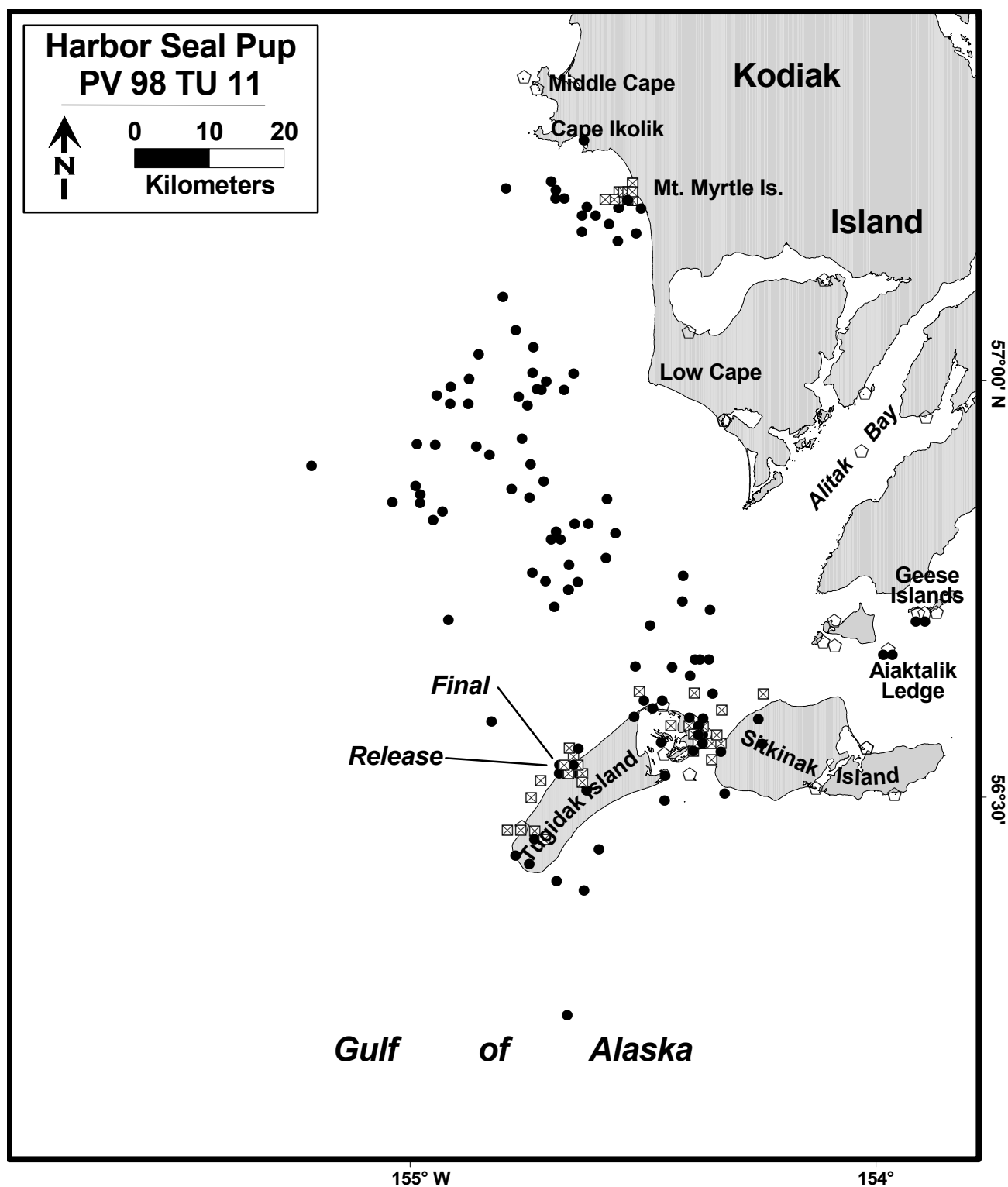


Figure 15. Mean daily at-sea (●) and on-land (⊠) locations of harbor seal # PV 98 TU 11, a male pup captured at South Middle Tugidak Island Beach on 25 June 1998. Data were received from this seal for 381 days, with the final location recorded on 11 July 1999, at Middle Tugidak Island Beach. Release location, final Argos mean daily location, and known harbor seal haulouts (◇) are indicated.

Table 15. Movements of harbor seal # PV 98 TU 11 among geographic regions in the study area.

Tugidak / Sitkinak Islands	Southwest Kodiak Island	Aiaktalik / Geese Islands
6/25/1998 - 7/12		
		7/14 - 7/17
7/19 - 12/20		
	12/24 - 5/6/1999	
5/12 - 7/11		

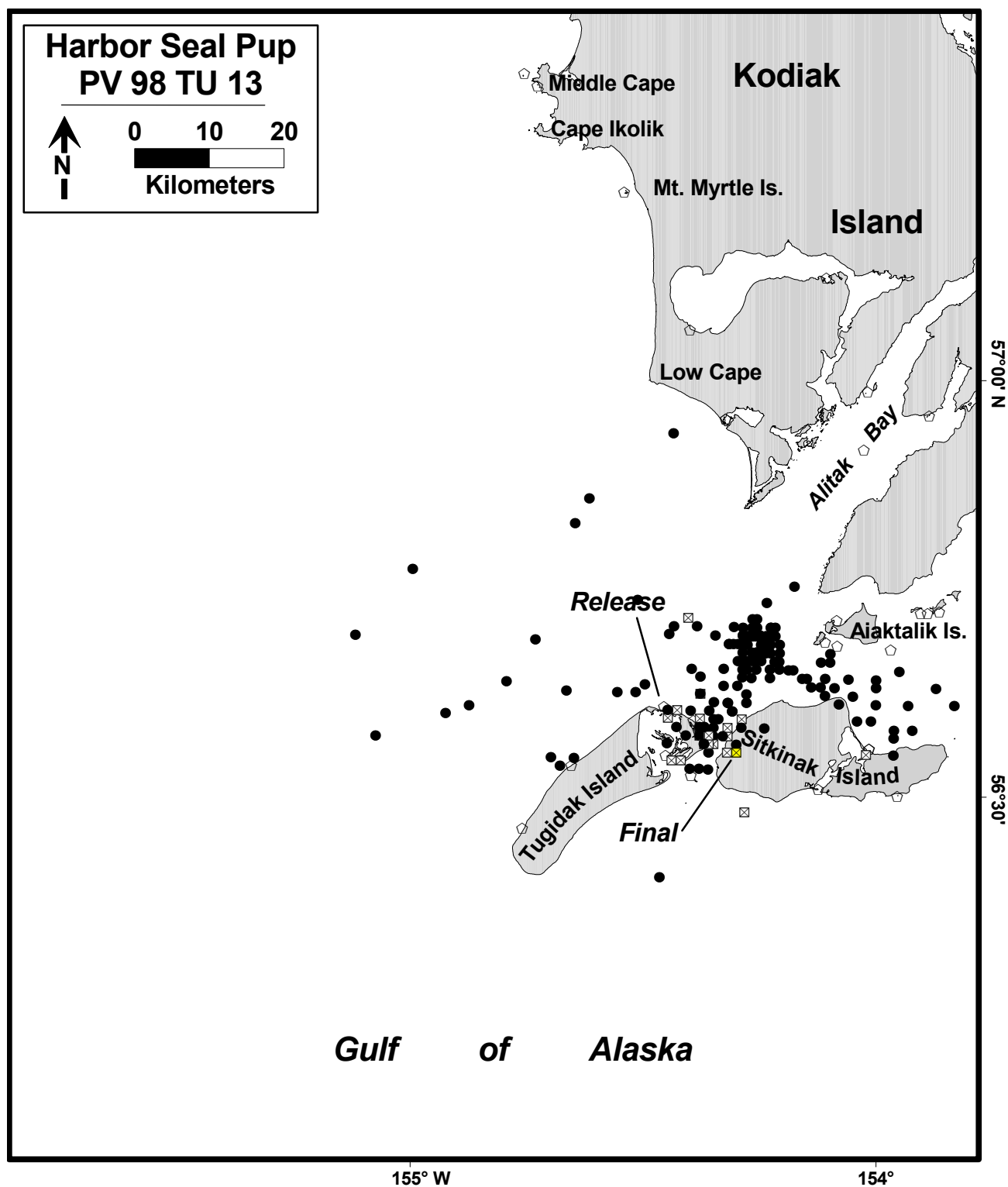


Figure 16. Mean daily at-sea (●) and on-land (☒) locations of harbor seal # PV 98 TU 13, a female pup captured at South Middle Tugidak Island Beach on 25 June 1998. Data were received from this seal for 311 days, with the final location recorded on 2 May 1999, on the western shore of Sitkinak Island. Release location, final Argos mean daily location, and known harbor seal haulouts (◊) are indicated.

Table 16. Movements of harbor seal # PV 98 TU 13 among geographic regions in the study area.

Tugidak / Sitkinak Islands
6/25/1998 - 5/2/1999

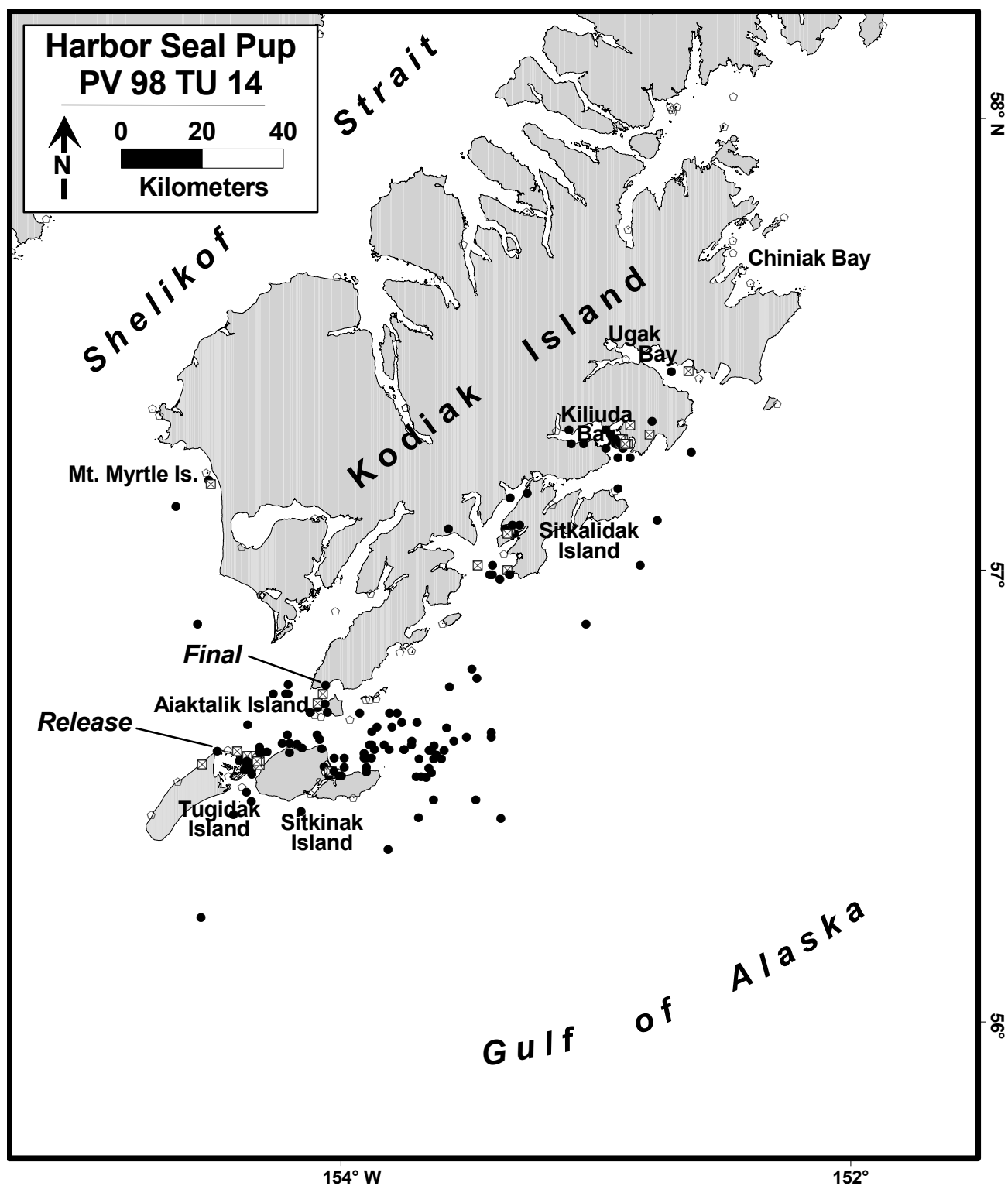


Figure 17. Mean daily at-sea (●) and on-land (⊠) locations of harbor seal # PV 98 TU 14, a male pup captured at North-Northeast Tugidak Island Beach on 26 June 1998. Data were received from this seal for 365 days, with the final location recorded on 26 June 1999, at Russian Harbor. Release location, final Argos mean daily location, and known harbor seal haulouts (◊) are indicated.

Table 17. Movements of harbor seal # PV 98 TU 14 among geographic regions in the study area.

Tugidak / Sitkinak Islands	Sitkalidak Island	Kiliuda Bay	Southwest Kodiak Island	Aiaktalik / Geese Islands
6/26/1998 - 7/17				
			7/18 - 7/24	
				7/29 - 8/2
8/4 - 10/4				
				10/5
10/6 - 10/8				
				10/10 - 10/11
10/14 - 10/24				
	10/29 - 11/3			
11/4 - 11/12				
	11/19			
11/21 - 11/22				
	11/26 - 12/7			
12/8 - 12/16				
		12/21 - 4/2/1999		
4/6 - 4/20				
	4/20 - 4/26			
4/28 - 5/3				
	5/6			
5/9				
	5/12 - 5/16			
5/30 - 6/14				
				6/17 - 6/29

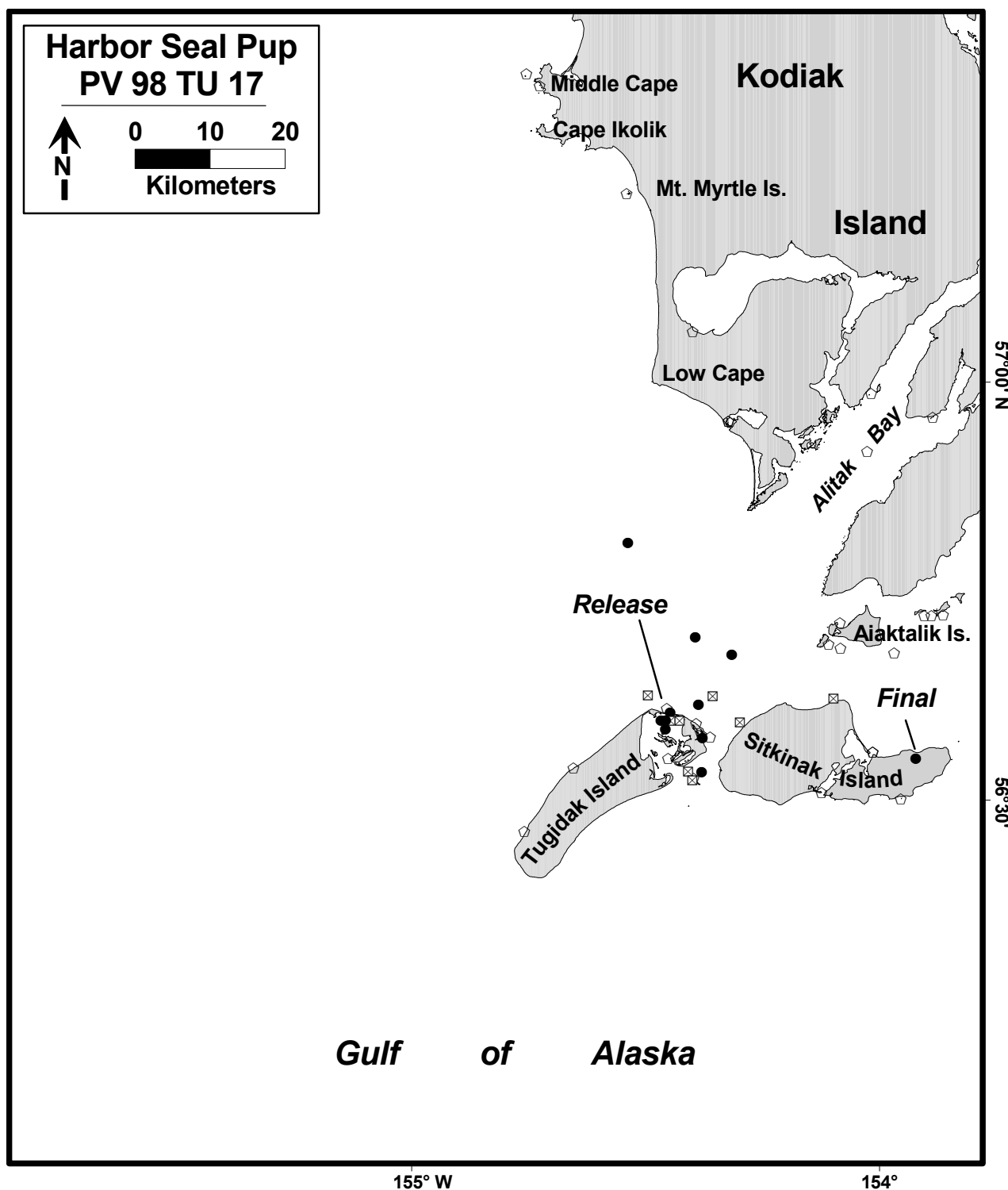


Figure 18. Mean daily at-sea (●) and on-land (☒) locations of harbor seal # PV 98 TU 17, a female pup captured at North Tugidak Island Beach on 26 June 1998. Data were received from this seal for 30 days, with the final location recorded on 26 July 1998, along the northeast shore of Sitkinak Island. Release location, final Argos mean daily location, and known harbor seal haulouts (◻) are indicated.

Table 18. Movements of harbor seal # PV 98 TU 17 among geographic regions in the study area.

Tugidak / Sitkinak Islands
6/26/1998 - 7/26

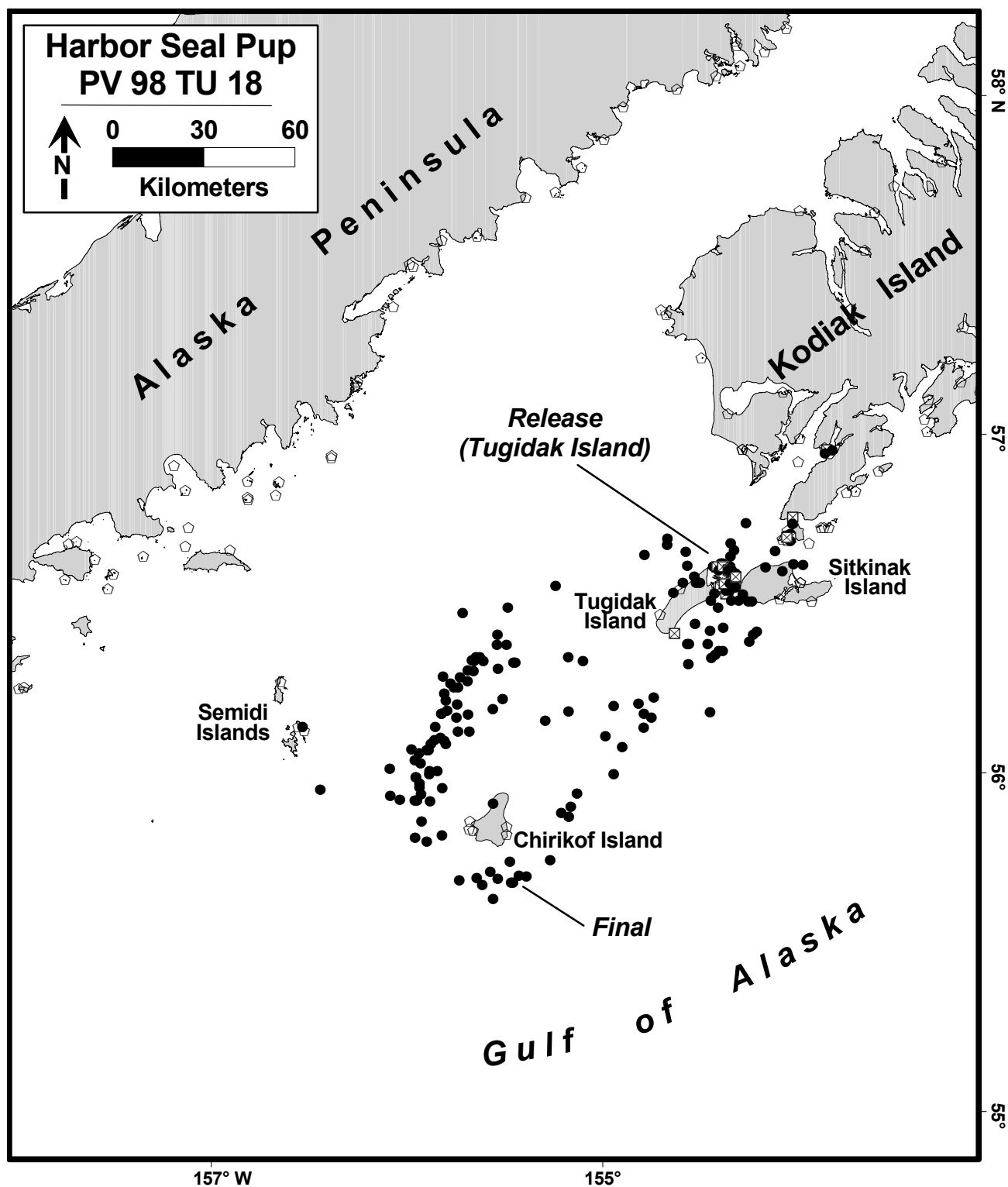


Figure 19. Mean daily at-sea (●) and on-land (☒) locations of harbor seal # PV 98 TU 18, a female pup captured at North Tugidak Island Beach on 26 June 1998. Data were received from this seal for 277 days, with the final location recorded on 30 March 1999, southeast of Chirikof Island. Release location, final Argos mean daily location, and known harbor seal haulouts (◻) are indicated.

Table 19. Movements of harbor seal # PV 98 TU 18 among geographic regions in the study area.

Tugidak / Sitkinak Islands	Aiaktalik / Geese Islands	Chirikof Island	Alitak Bay	Semidi Islands
6/26/1998 - 7/17				
			7/19 - 7/24	
	7/28 - 8/5			
8/6 - 8/9				
	8/11 - 8/13			
8/16 - 9/4				
		9/6 - 9/29		
10/1 - 10/3				
		10/4 - 10/22		
10/23 - 10/25				
		10/27 - 11/9		
11/10 - 11/13				
				11/14 - 11/17
		11/21 - 11/29		
11/30				
		12/3 - 12/12		
12/14				
		12/17 - 12/21		
12/22 - 12/24				
		12/29 - 1/12/1999		
1/13				
		1/22 - 1/30		
1/31 - 2/4				
		2/5 - 2/13		
2/14 - 2/18				
		2/27 - 2/28		
3/3 - 3/7				
		3/10 - 3/30		

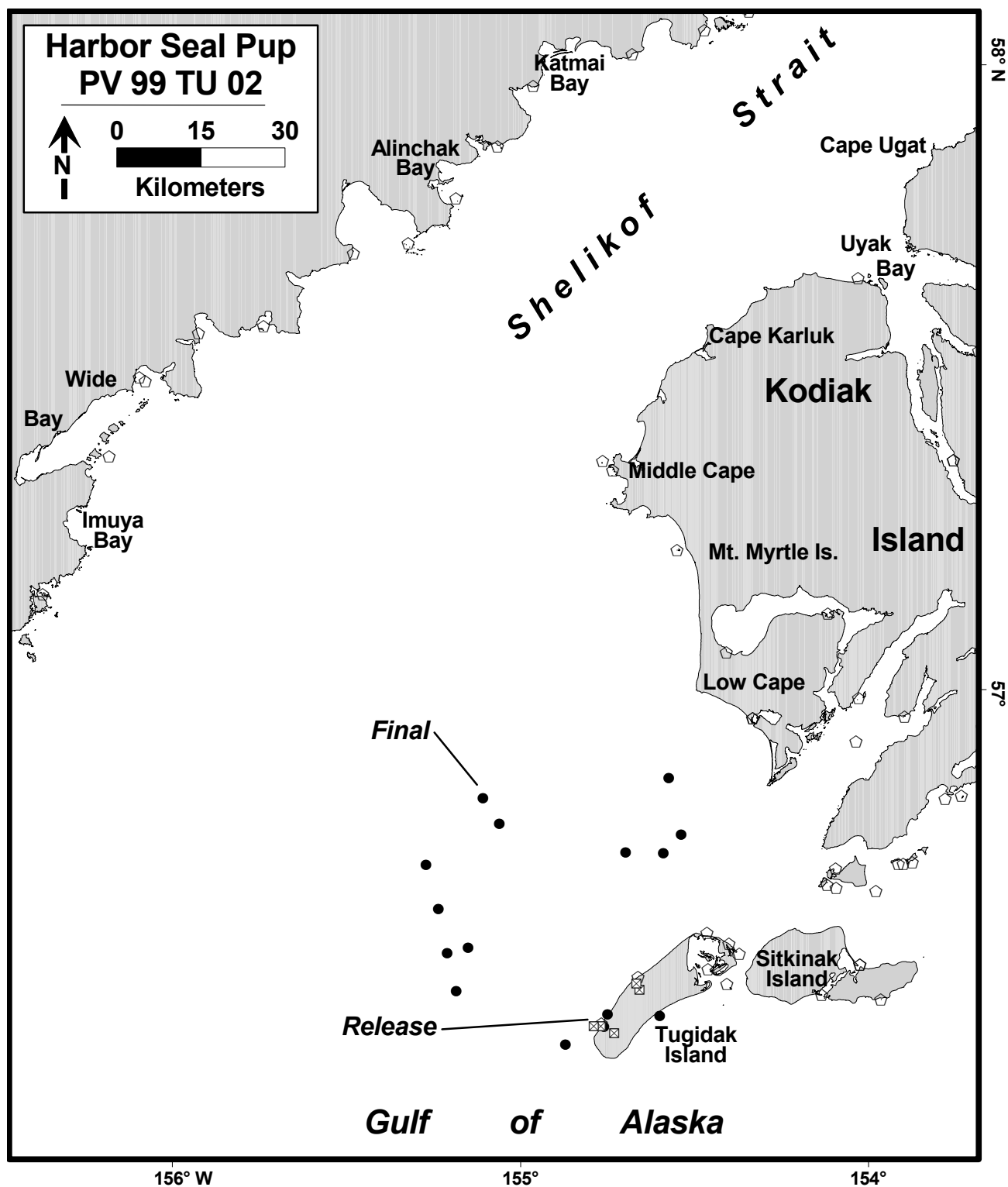


Figure 20. Mean daily at-sea (●) and on-land (☒) locations of harbor seal # PV 99 TU 02, a male pup captured at Southwest Tugidak Island Beach on 26 June 1999. Data were received from this seal for 88 days, with the final location recorded on 22 September 1999, northwest of Tugidak Island. Release location, final Argos mean daily location, and known harbor seal haulouts (◊) are indicated.

Table 20. Movements of harbor seal # PV 99 TU 02 among geographic regions in the study area.

Tugidak / Sitkinak Islands
6/26/1999 - 9/22

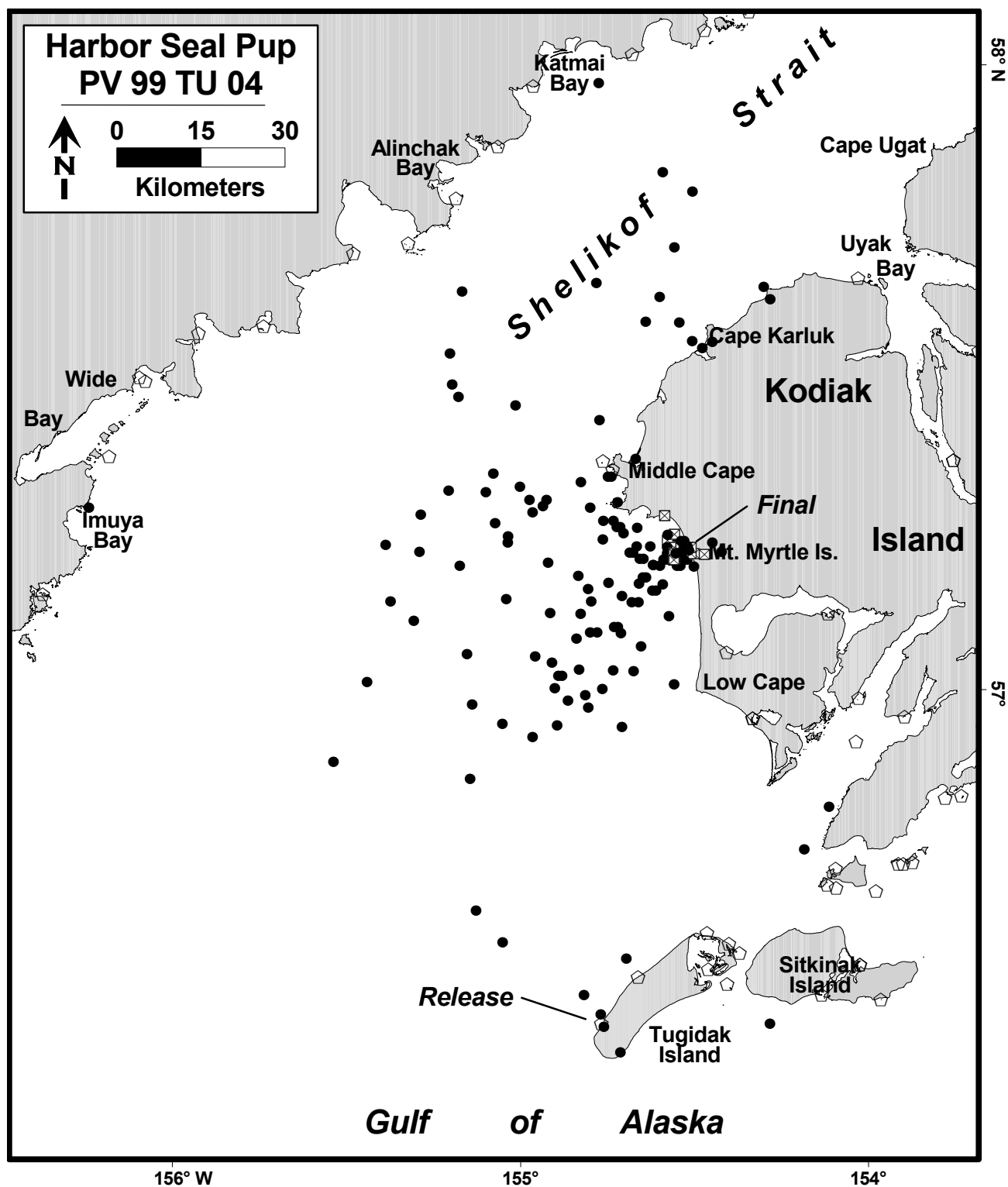


Figure 21. Mean daily at-sea (●) and on-land (☒) locations of harbor seal # PV 99 TU 04, a male pup captured at Southwest Tugidak Island Beach on 26 June 1999. Data were received from this seal for 328 days, with the final location recorded on 19 May 2000, at Mount Myrtle Island. Release location, final Argos mean daily location, and known harbor seal haulouts (◊) are indicated.

Table 21. Movements of harbor seal # PV 99 TU 04 among geographic regions in the study area.

Tugidak / Sitkinak Islands	Southwest Kodiak Island	Shelikof Strait
6/26/1999 - 6/29		
	7/1 - 7/4	
7/8 - 7/10		
	7/12 - 7/21	
		7/22
	7/24 - 8/31	
		9/2 - 9/6
	9/7 - 10/16	
10/19		
	10/21 - 11/9	
11/10 - 11/12		
	11/14 - 12/13	
		12/14
	12/15 - 1/3/2000	
		1/5 - 1/11
	1/12 - 1/13	
		1/15 - 1/20
	1/21 - 2/20	
		2/25 - 2/27
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		3/10 - 3/14
	3/15 - 4/15	
		4/20 - 4/22
	4/24 - 5/19	

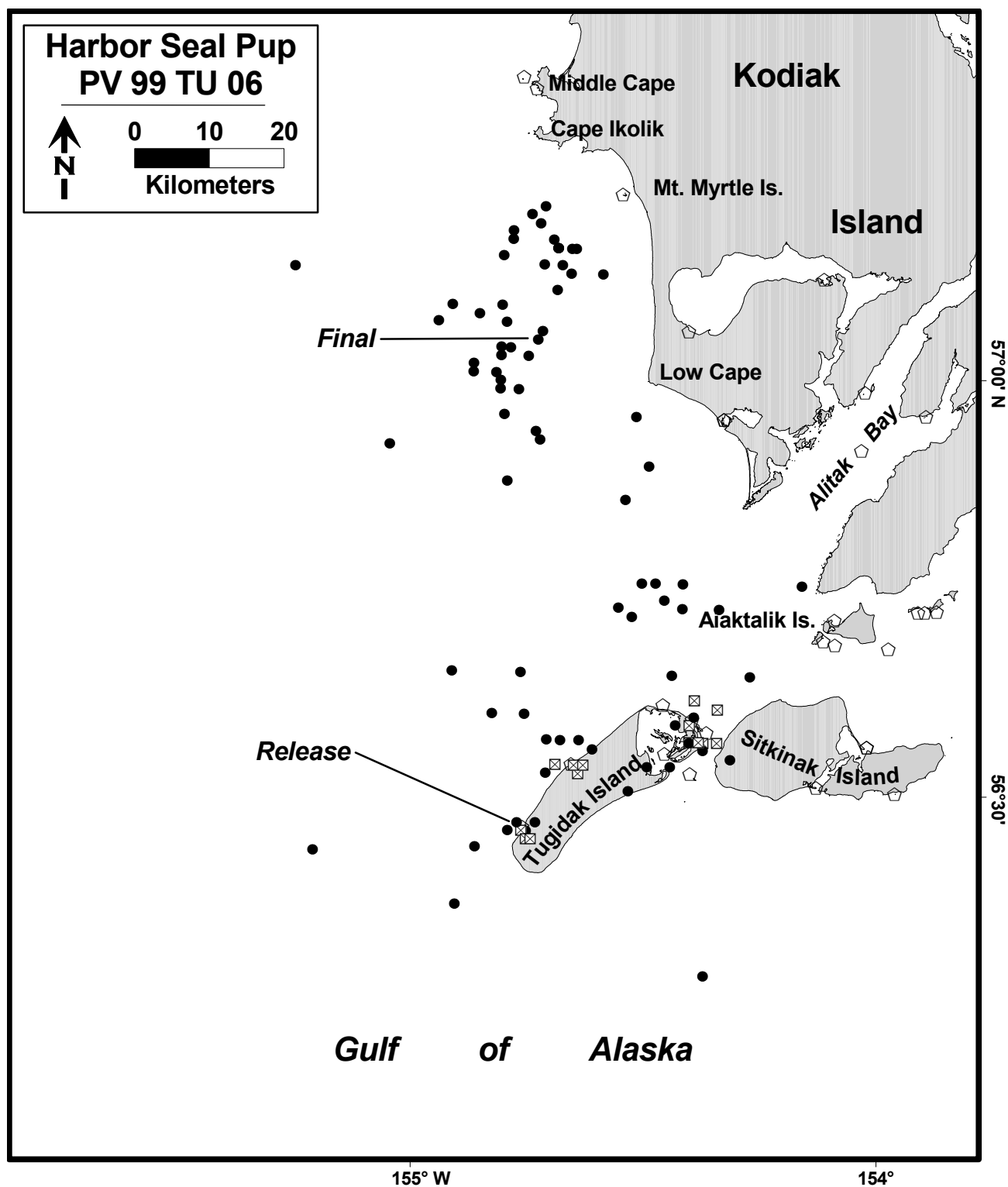


Figure 22. Mean daily at-sea (●) and on-land (☒) locations of harbor seal # PV 99 TU 06, a female pup captured at Southwest Tugidak Island on 26 June 1999. Data were received from this seal for 134 days, with the final location recorded on 7 November 1999, off Low Cape. Release location, final Argos mean daily location, and known harbor seal haulouts (◊) are indicated.

Table 22. Movements of harbor seal # PV 99 TU 06 among geographic regions in the study area.

Tugidak / Sitkinak Islands	At-Sea off Southwest Kodiak Shore
6/26/1999 - 7/31	
	8/2 - 8/4
8/6 - 8/29	
	8/30 - 9/7
9/9	
	9/12 - 9/21
9/22 - 9/25	
	9/25 - 10/10
10/11 - 10/16	
	10/17 - 11/7

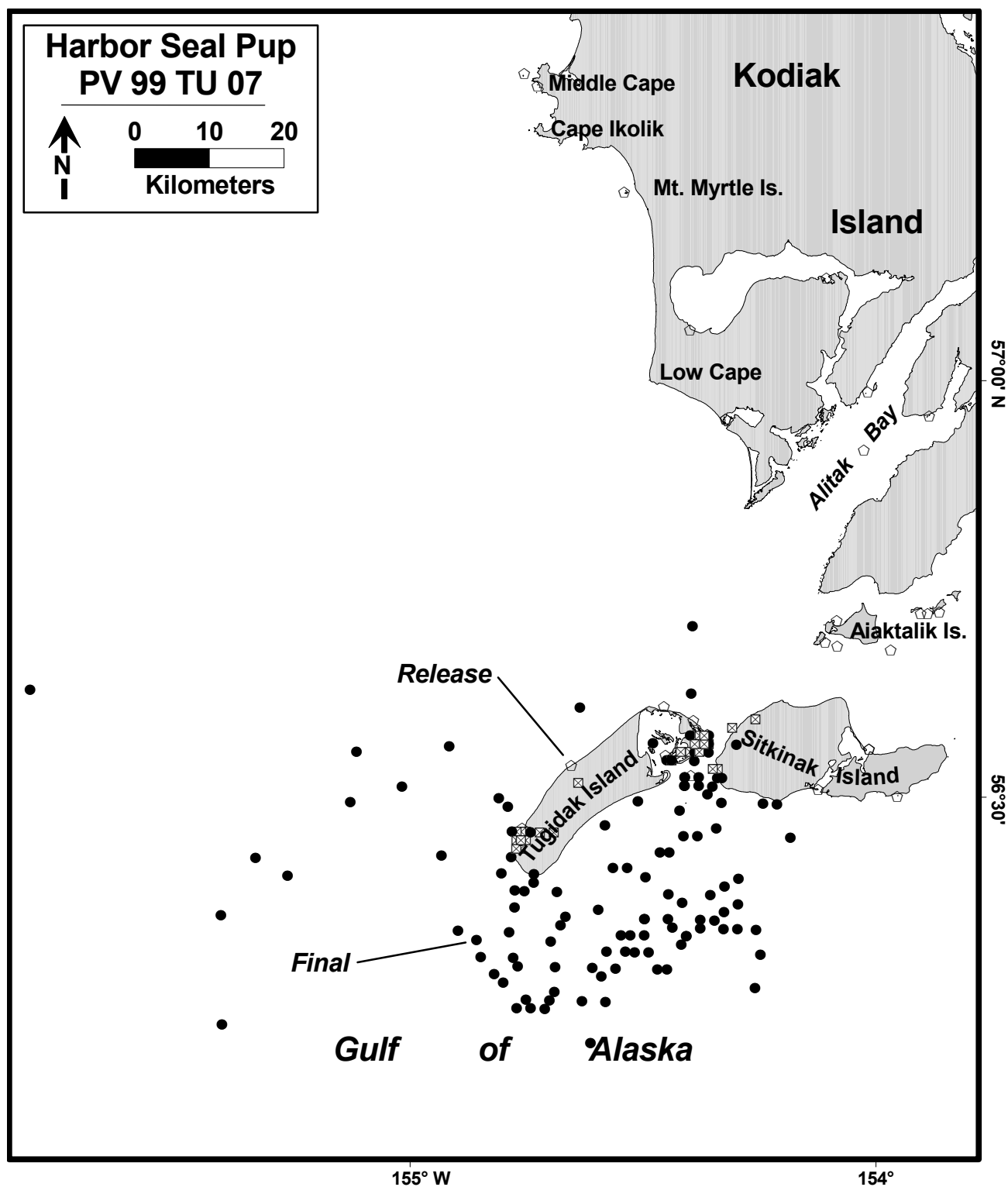


Figure 23. Mean daily at-sea (●) and on-land (☒) locations of harbor seal # PV 99 TU 07, a female pup captured at Southwest Tugidak Island Beach on 27 June 1999. Data were received from this seal for 291 days, with the final location recorded on 13 April 2000, southwest of Tugidak Island. Release location, final Argos mean daily location, and known harbor seal haulouts (◊) are indicated.

Table 23. Movements of harbor seal # PV 99 TU 07 among geographic regions in the study area.

Tugidak / Sitkinak Islands
6/26/1999 - 4/13/2000

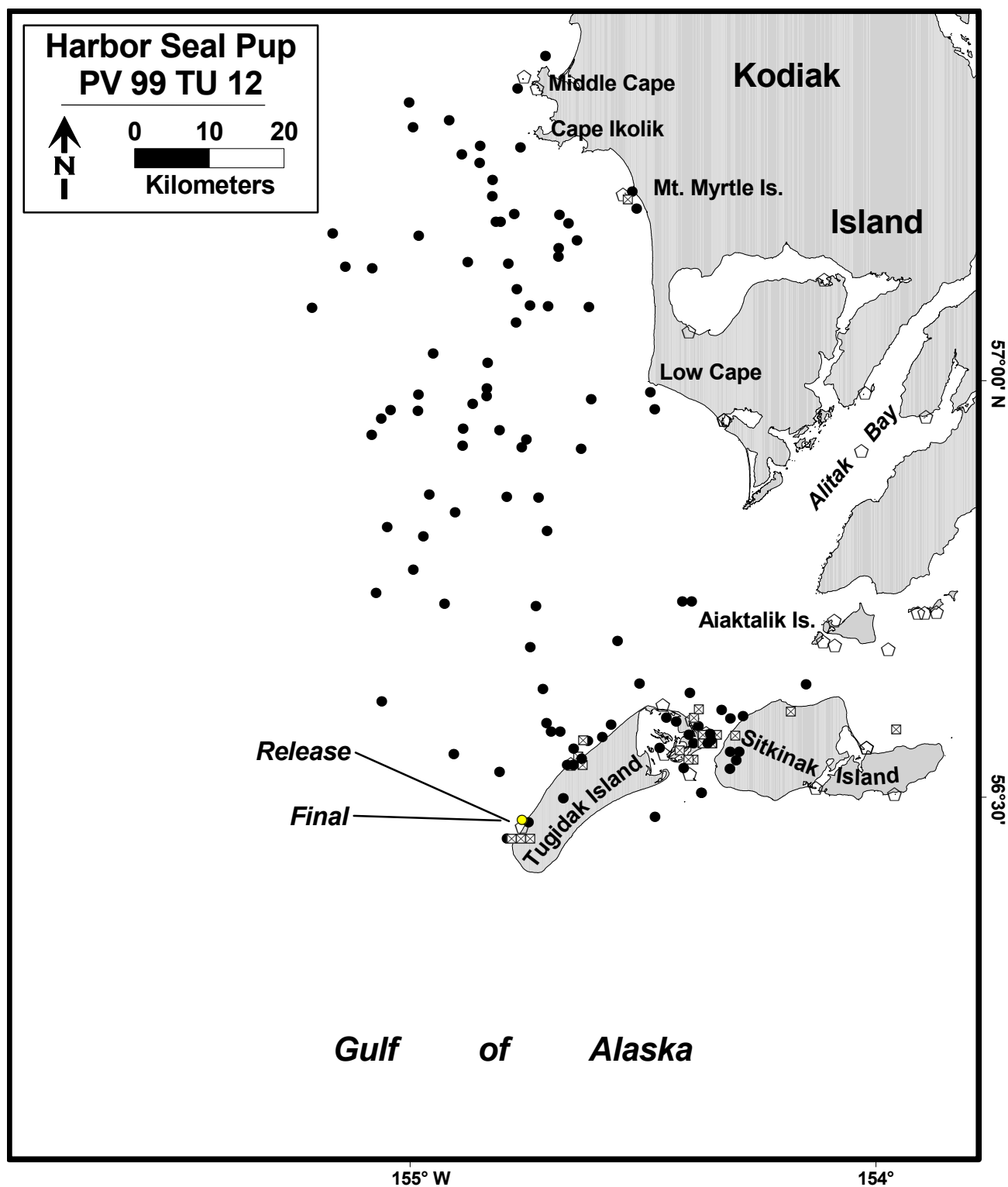


Figure 24. Mean daily at-sea (●) and on-land (⊠) locations of harbor seal # PV 99 TU 12, a female pup captured at South Middle Tugidak Island Beach on 27 June 1999. Data were received from this seal for 367 days, with the final location recorded on 28 June 2000, at South Middle Tugidak Island Beach. Release location, final Argos mean daily location, and known harbor seal haulouts (◇) are indicated.

Table 24. Movements of harbor seal # PV 99 TU 12 among geographic regions in the study area.

Tugidak / Sitkinak Islands	Along Southwest Kodiak Island Shore
6/27/1999 - 7/15	
	7/19 - 7/20
7/21 - 7/27	
	7/29 - 8/12
8/14 - 9/5	
	9/7 - 9/30
10/2 - 10/9	
	10/12 - 10/18
10/21 - 10/25	
	10/27 - 10/29
11/3 - 11/5	
	11/7 - 11/11
11/13 - 11/27	
	12/1 - 12/15
12/18 - 1/3/2000	
	1/8 - 1/13
1/15 - 2/6	
	2/15 - 2/17
2/18 - 3/6	
	3/7 - 3/8
3/16 - 6/28	

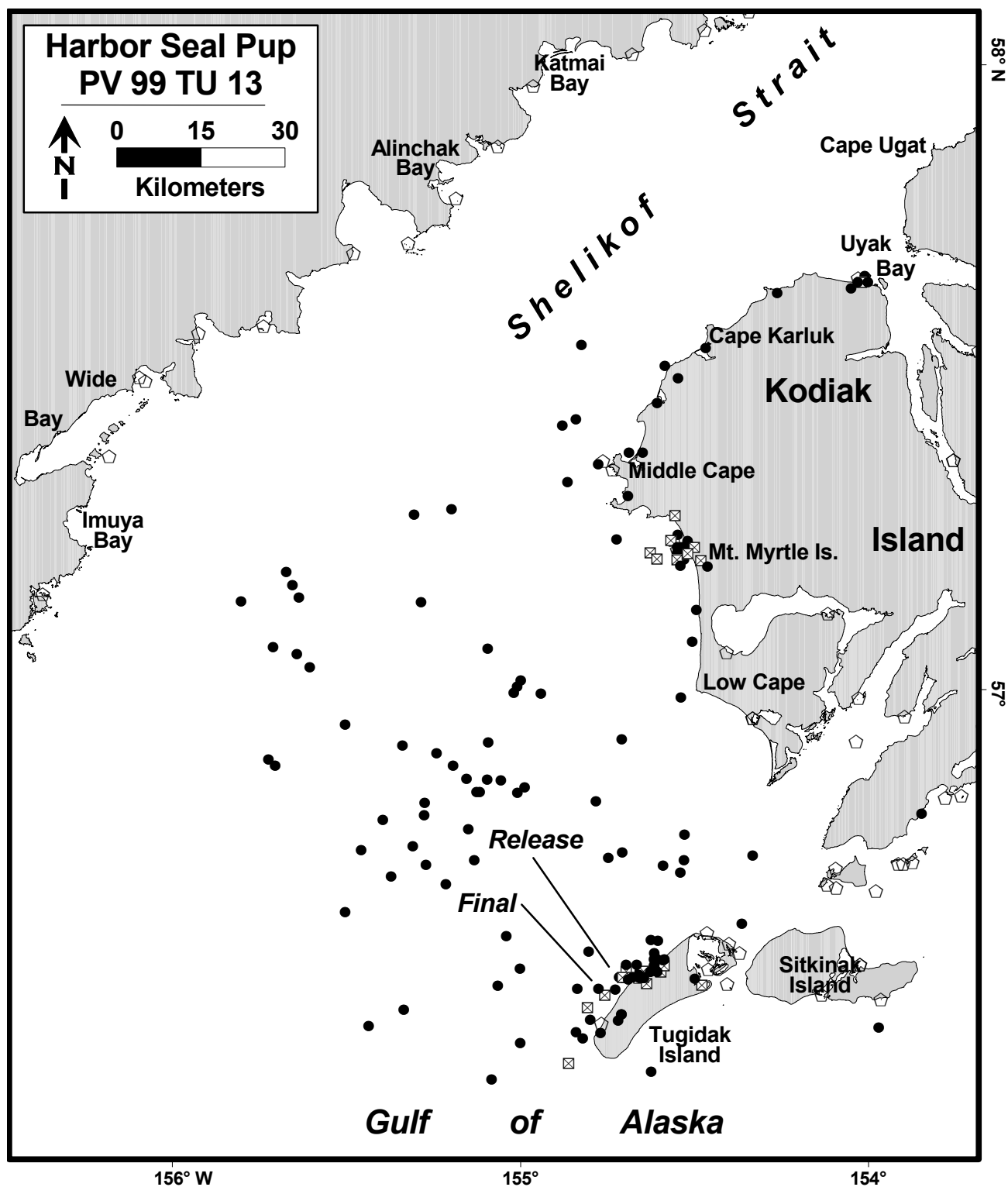


Figure 25. Mean daily at-sea (●) and on-land (☒) locations of harbor seal # PV 99 TU 13, a female pup captured at South Middle Tugidak Island Beach on 27 June 1999. Data were received from this seal for 337 days, with the final location recorded on 29 May 2000, west of Tugidak Island. Release location, final Argos mean daily location, and known harbor seal haulouts (◊) are indicated.

Table 25. Movements of harbor seal # PV 99 TU 13 among geographic regions in the study area.

Tugidak / Sitkinak Islands	Along Southwest Kodiak Island Shore	At-Sea off Southwest Kodiak Shore
6/27/1999 - 7/23		
		7/25 - 8/17
	8/18 - 9/10	
		9/14
9/16 - 9/20		
		9/21 - 9/29
9/30 - 10/5		
		10/8 - 10/16
10/17		
		10/21 - 10/23
10/24 - 10/25		
		10/27 - 11/12
11/3 - 11/4		
		11/7 - 11/11
11/12 - 11/24		
	11/30 - 2/2/2000	
		2/9 - 2/13
2/13 - 3/3		
		3/5 - 3/14
3/16 - 3/19		
		3/20 - 3/26
3/31 - 4/25		
		4/26 - 5/29

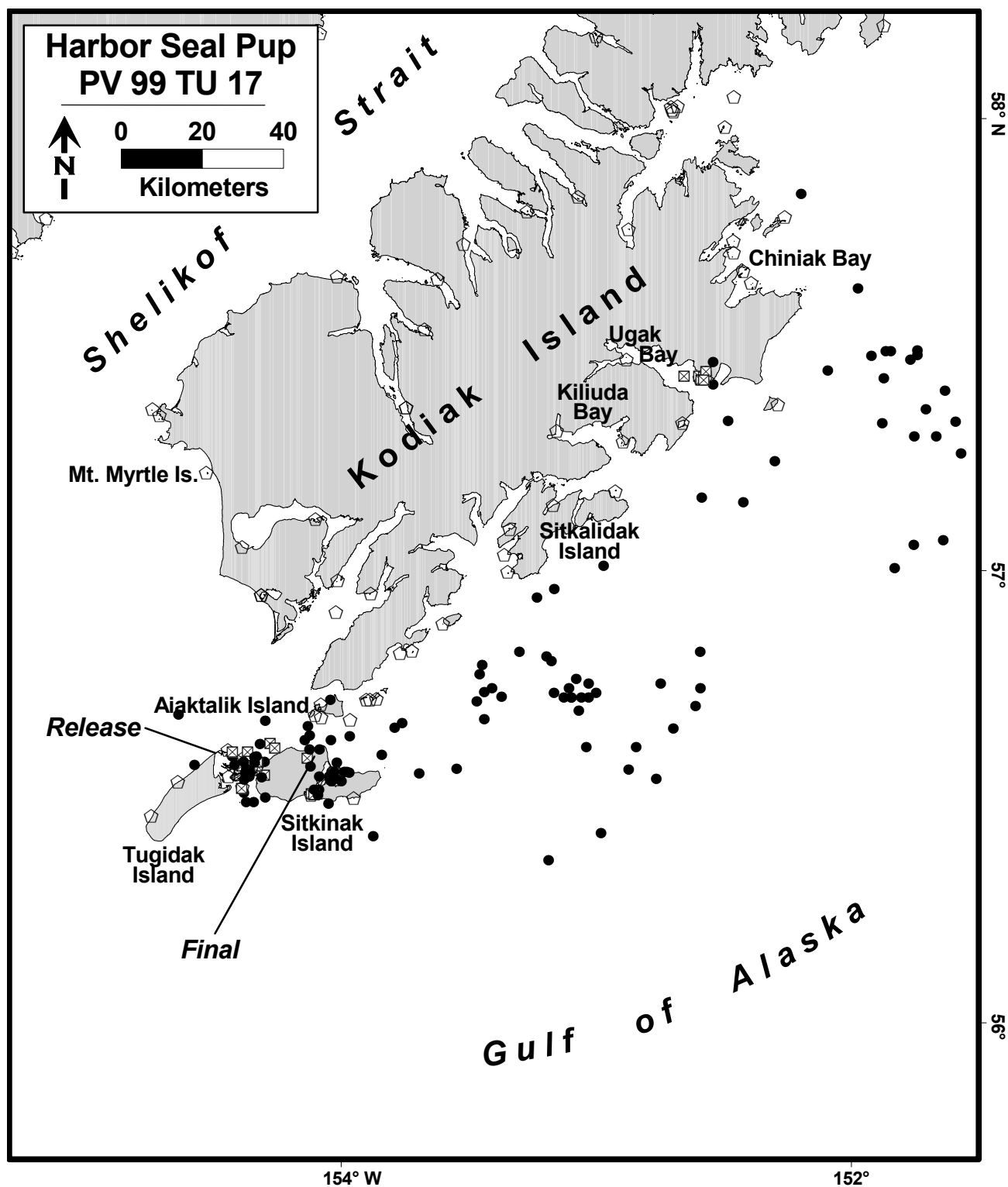


Figure 26. Mean daily at-sea (●) and on-land (⊠) locations of harbor seal # PV 99 TU 17 a male pup captured at North-Northeast Tugidak Island Beach on 28 June 1999. Data were received from this seal for 376 days, with the final location recorded on 8 July 2000, on the north shore of Sitkinak Island. Release location, final Argos mean daily location, and known harbor seal haulouts (◇) are indicated.

Table 26. Movements of harbor seal # PV 99 TU 17 among geographic regions in the study area.

Tugidak / Sitkinak Islands	At-Sea off Kodiak Island Eastern Shore	Pasagshak Bay
6/28/1999 - 8/2		
		8/12 - 8/26
9/1		
	9/3 - 9/6	
		9/10
	9/13 - 10/9	
10/11 - 10/16		
	10/18 - 11/3	
11/4 - 11/7		
	11/8 - 11/27	
11/30		
	12/2 - 12/16	
12/17 - 12/20		
	12/22 - 1/11/2000	
1/12 - 1/17		
	1/23 - 2/6	
2/8 - 2/22		
	2/25 - 3/8	
3/9 - 3/21		
	3/26 - 4/1	
4/11 - 7/8		

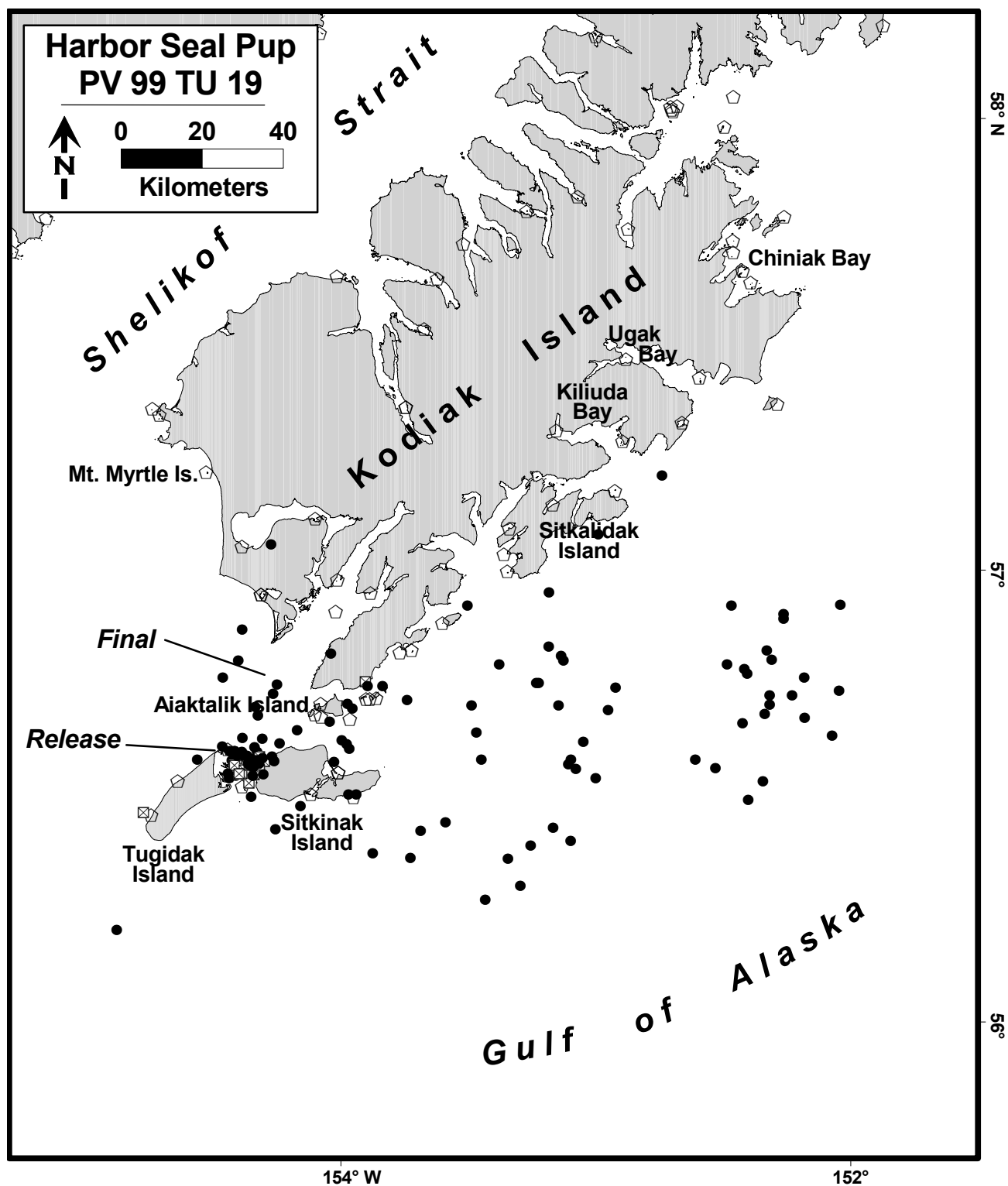


Figure 27. Mean daily at-sea (●) and on-land (⊠) locations of harbor seal # PV 99 TU 19, a female pup captured Tugidak Island North Beach on 28 June 1999. Data were received from this seal for 364 days, with the final location recorded on 26 June 2000, in Tugidak Passage. Release location, final Argos mean daily location, and known harbor seal haulouts (◇) are indicated.

Table 27. Movements of harbor seal # PV 99 TU 19 among geographic regions in the study area.

Tugidak / Sitkinak Islands	Sitkalidak Island
6/28/1999 - 12/6	
	12/11 - 12/23
12/26 - 3/25/2000	
	4/3 - 4/3
4/5 - 6/26	